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ORIGINAL ARTICLES.

REMINISCENSES OF DR. THOMAS ADDIS EMMET.*

BEFORE entering upon my autobiographical narrative, which, it has been suggested, would be an appropriate and interesting form of response to your toast, I wish to express my fullest appreciation of the honor you have done me. I can say no more to give greater expression to the depth of my feelings than I thank you all, and with all my heart.

This occasion I feel may prove a vindication of my work as well as the most important event of my life. I naturally asked for the names of those who were the prime movers in tendering me this dinner, and my surprise was great to learn that I had not been honored by my friends alone. There are a number among you who I will not say have been inimical, but who certainly lacked appreciation of my methods and who have long held that I was a teacher of false doctrine. Now possibly the pendulum has begun to swing the other way, as I have hoped and prayed for years it would, but, be this as it may, you are friendly *now* or you would not be here, and my heart warms equally to one and all of you. I have long finished my life's work, and the desire now with me is peace and good will to all. It has been a surprise to me with advancing years how quickly have been forgotten the disagreeable incidents which I now realize must attend the professional course of all men with decided opinions as I have held, and who stood, as I have always, ready to defend them.

I was born at the University of Virginia, near Charlottesville, where my father was one of the original professors appointed by Mr. Jefferson to fill the chair of Natural History and afterward of chemistry. An effort to recall the incidents of my early life has nearly overpowered me with the vivid recollection of persons and events which had passed from my mind for so many years.

Above all, stands out the recollection of my father, Dr. John Patten Emmet, a remarkable man both in character and attainments. For years previous to his death he had been my constant companion. It is my belief few fathers ever made a more lasting impression upon the moral development and after-life of a son than he made upon mine. From my earliest age he seemed seldom to have spoken to me without attempting to teach me something which I readily understood, and of which I seemed to have retained the recollection. He taught me to think and to think of the rights of others; to be careful in money matters; to obey the laws of God and man from principle, and to realize to a full degree my duty to both. He taught me to be a close observer, and to seek the causes of things. Thus was laid the foundation of my success in after life as a pioneer in the development of the theory and practice of gynecology. On one occasion he taught me a very practical lesson. He overheard me finding fault, in an arrogant manner, with the negro whose business it was to clean my shoes. With a twinkle in his eye, which I well remember, and in a kindly manner as if conferring a privilege, he said: "My boy, from this time forth, so long as you are under my roof, you shall clean your own shoes, and this will give you the satisfaction of always being able to have your shoes exactly in the condition you wish." This taught me to be self-reliant and to this day I am reluctant to call upon anyone to do for me what I can do for myself. I have gone through life with an increasing ambition to be worthy of his good name, and my first thought has been the gratification he would have experienced in the flesh, on every occasion where I have attained success or have been the recipient of some honor.

My father, at his death, left me, at the age of fourteen, little more than his example and good name. From that time I have had to think for myself and practically to have paid my own way. A relative advanced me the money so long as I needed it, but all of this I repaid with interest as soon as possible. In return for his kindness it is one of the most gratifying incidents of my life to have had the privilege and ability years after, to lighten his burden, when a reverse of fortune came upon him in his old age.

After my father's death, I entered the University as a student, but the fact of my residence as the son of a professor, my youth and a very rapid physical development militated against any steady mental application. My gun, my dog and my horse, the fields and the woods on the neighboring mountains saw more of me than my professors, until finally, falling hopelessly behind in my classes, it was requested by the faculty that I should withdraw from the college.

Dr. Robley Dunglison, of the Jefferson Medical School, Philadelphia, had been appointed a professor in the University of Virginia by Mr. Jefferson at the same time with my father, and they had been warm personal friends. Dr.

* This sketch was prepared by Dr. Emmet, to be read at the dinner, May 29, 1905, in a whole or in part, as might seem appropriate. Dr. Emmet, however, was called on at so late an hour that he made but a few extemporaneous remarks having little reference to what he had intended to say. The subjects treated in this sketch have been considered of especial interest in connection with some of the remarks made by the different speakers who were ignorant of what Dr. Emmet had prepared. After deciding to print this narrative, new material entering more into detail was added by him for the purpose of elucidating the subjects briefly referred to in common, but otherwise the manuscript has remained unchanged.

Dunglison assisted at my birth, but had left the University before my recollection. I have always possessed the faculty of being able to decide quickly for myself in any emergency. Being thus suddenly stranded I wrote to Dr. Dunglison as to a stranger, telling him the circumstances and asking his advice as to the advisability of trying to study medicine. I received a prompt and generous response. The Doctor fully understood my difficulty and his advice was to make no effort to study, but to attend the medical lectures regularly and try to remember what I could. The first medical lecture I ever heard was delivered by Dr. J. K. Mitchell, the professor of the theory and practice of medicine in the Jefferson, and from that hour I felt that my life's work was laid out for me.

My course of study was an uneventful one with the exception of an attack of smallpox and one of pneumonia, for which I was immediately bled, got a dose of calomel, and convalesced promptly. I led a frugal life, attended strictly to my work and kept my living expenses and extravagances within three hundred dollars a year. At the ending of four years, and after the delay of a year to pass my twenty-first birthday, I graduated.

In response to the action of the American Medical Association, which had been but recently organized, the examinations for graduation in medicine were said to have been particularly strict in 1849-50. I certainly passed a creditable examination, but without having dissected more than the sartorious muscle, without having written a prescription, or having attended an obstetrical case. I make this statement in no disparagement of the Jefferson medical faculty, as with advancing experience I have been impressed with the fact that these professors formed a remarkable body of men. Each was a host in himself, and I doubt if their equal as a whole were ever gotten together in any other medical school, at home or abroad. The system of teaching was defective in this respect then as it is to-day, and only those who were fortunate enough to obtain hospital appointments just after graduation were able to correct the defect by gaining the necessary practical experience. Otherwise the greater part of a lifetime must be spent in private practice to obtain what was necessary at the beginning. I knew thoroughly the theory of medicine, and by means of plates my knowledge of anatomy was perfect, nor can I recall having had the slightest difficulty in answering any important question.

Among the medical men and their assistants with whom I was brought in contact at that time there was a great deal of common sense and appreciation of the practical value of what should be taught, and yet there was no lack in estimation as to the value of detail and accurate knowledge where it was applicable. I attended each year the summer course in Philadelphia, which was a repetition of the winter one given in the college. The lectures were delivered by younger men who were well trained, and all of those who lived became prominent later in life. On one occasion a Dr. Wallace, who already had a large surgical practice, was to lecture on hernia one hot July afternoon, when it was hot only as it can be sometimes in Philadelphia. The Doctor weighed about three hundred pounds, and after divesting himself of all the clothing he could spare, came in with the trunk of a subject to make his demonstration. But the heat was too much for him and, mopping himself between each word, he began: "When you come to operate for hernia you will find little you have been taught to expect, and I cannot now enter into a fuller explanation, but it is in a nutshell, cut until you come to the gut, and you will be a damn fool if you cut it; good day." When the weather got cooler the Doctor did the subject full justice in his usual affable manner, but to this hot day I am indebted for an important practical lesson being forcibly impressed upon me. Many times in after-life, when I had lost my way in the abdominal cavity, where everything had become matted together by frequent attacks of peritonitis and where often in the tissues there seemed but the thickness and consistency of damp tissue paper as the only barrier to some accident which might cause the death of the patient, I have felt a wave of demoralization pass through me down to my knees. I would suddenly think of the lecture on hernia, with the full details which I have not given, and with a smile not in keeping with the situation, I have had my faculties sharpened so that with care and time I have soon worked out into a clearing, with no further difficulty before me.

I do not cite this incident of the lecture on hernia as a reflection upon Dr. Wallace, but in appreciation of the terse and practical lesson the doctor wished to convey. Notwithstanding the accidental inelegant mode of expression, it impressed everyone who heard his few words with the necessity of self-reliance under every circumstance, and, above all, that the difficulties of the operation were exaggerated by the usual mode of teaching. Dr. Wallace had already gained a reputation as a careful and successful surgeon before his death.

On the day of graduation, after a long ceremony, I received my diploma and reached my lodgings late for dinner, but before I had finished I was summoned by a communication from the dean of the faculty to call upon him without delay. My first thought was that some mistake had been made about my diploma, and I answered the summons with a heavy heart. I was informed that through an agent of the Chilian government the faculty had been requested to select from the graduating class some one fitted to take charge, as surgeon, of an expedition, and that I had received the appointment. The expedition was about to sail from New York under St. George Campbell, the engineer, who was to

build the first railroad in Chili, for Meiggs, who afterward became known as the railroad king. I was to receive three thousand dollars a year in gold and all my living and traveling expenses paid upon binding myself to remain until the completion of the road. This seemed a fabulous sum to one in my circumstances, and in relative value would be about equal to twelve thousand dollars at the present time. Without delay I called on the merchant in New York who had the fitting out of the expedition and was very cordially received as a person of some importance. I was explicitly informed by him that no expense should be spared in fitting out my department, or in consulting anyone as an expert who could aid me. I learned that about eight hundred men, women and children were going, and as we would likely be about three years up among the Andes Mountains, unable to supply any deficiency, it was necessary that no mistake of omission should be made in supplying everything which would be necessary in addition to medicines and surgical outfit. To make a beginning I was requested then and there to write out a requisition for medicines, to which I could make additions afterward. I had no difficulty in writing out the names of a number of medicines, but soon I began to perspire freely on realizing for the first time the responsibility I was about to assume. After chewing for a short time upon the end of my quill pen, to aid my thoughts as to what I should do, I took up my hat, went out to the merchant and told him I could not conscientiously accept the position. He looked at me as if he thought I was a fool, and I passed out without comment. I afterward learned that a young graduate, who probably had not had my advatages; accepted the position; but I was never able to ascertain how he "made out."

I have never had my sense of duty so severely taxed as on this occasion, where I had to put aside so completely every consideration of self interest, and it seemed at the time as if my decision was the wiping out of all future prospects.

Within a short distance of the counting house I met Dr. MacNeven, the only person I knew in the city outside of my family circle. He asked me what I was doing in New York, and I asked him what he was doing downtown at that hour. It was just after the frightful famine in Ireland when several hundred thousand immigrants had landed during the year in New York, and were dying in the streets of typhus, or ship fever, as it was called. Commissioners of Emigration were appointed, and they were erecting temporary buildings on Ward's Island for hospital purposes. A medical board of fifteen visiting physicians had been appointed, and Dr. MacNeven was one of the number. He was on his way to the place of meeting to examine applicants for the position of Resident physician, and I accompanied him. I was the first victim, and after an examination of four hours, during which each member of the Board took a turn, I was judged competent and reported for duty on the following day. I had never seen a case of ship fever, yet a building containing one hundred male cases was assigned to me, together with one hundred and fifty beds in addition for sick children and women, all of whom I had to visit regularly twice a day and as often as necessary to see any special case. I was also instructed to "go through" once a day a ward near my quarters containing about one hundred aged women. I was somewhat staggered at the responsibility put upon me, but I accepted the situation with a light heart as the only means by which I could gain experience in the practice of my profession.

At an early hour next morning I began my work with the old women, feeling fully satisfied that I would accomplish what was expected of me if it could be done by my own efforts. I supposed all occupying beds in a hospital ward were sick, but when I was through, taking each woman in rotation, I had not a very clear idea of my morning's work, beyond having apparently cheered up greatly the spirits of the old women by my attentions. In my effort to do justice to the complaints of each and to use to their advantage the account of family or traditional ailments, which were communicated by each in confidence, I had written pages of prescriptions, having attempted to treat symptoms, singly and in groups.

I was seen coming out of the building, weary and in want of food and was accosted by one of the staff with the salutation: "In the name of Heaven, Doctor, what have you been doing in there all day with those old women? Don't you know that is part of the Refuge and all they need is a little tea and tobacco?"

Fortunately for the sick in my service that day when I was wanted and could not be found, another physician had been assigned to them and I was assisted each day thereafter. But further comment is unnecessary, in addition to what I have already expressed on our faulty method of teaching practice. At the end of some ten days I developed an attack of ship fever and escaped death by a very narrow margin, but I was back again at work within a month after the fever left me, although a leave of absence was generally granted for three months to recuperate. Contrary to rule, I had a second attack thirteen months later, which was so virulent in character that to save my life it was necessary to move me from the hospital atmosphere, with my nurses, to the house of an uncle in the city, which he and his family vacated on a few hours' notice, and it took me two months to regain my strength sufficiently to resume my work.

I served as a resident physician for three years, having had in that time under my charge about eleven thousand miscellaneous cases, including all the eruptive fevers among adults and children, with over nineteen hundred cases of adult males suffering from ship fever. I got also some surgical experience and served my

time in the Obstetrical Department, where from five to ten women a day were delivered. The interne was in full charge of the practice for about twenty-two hours out of each day, and whenever the visiting physician was not on duty. I frequently volunteered in the Pharmacy, and after my regular work was finished I served many hours at night in helping put up prescriptions. This experience was of great advantage when I began private practice, as a large number of physicians then still furnished their office patients with medicines, and I continued the custom for a number of years. A revival of the custom would be an offset to the prescribing druggists, and, from a pecuniary point, be of great advantage to the profession by stopping the repeating by druggists of old prescriptions for former patients and for all their friends on one office fee. In addition, as part of my volunteer work, I made fully one thousand post-mortem examinations. I thus familiarized myself with every pathological condition, with the exception of true yellow fever, of which I saw very few cases, but we had a number known as Chagres fever. At that time the Panama Railroad was being built, and at the beginning it was part of the duty of our staff to select with the greatest care the laborers, who were nearly all young Irishmen, and a finer set of men were never selected for any service. Making allowances for all exaggeration, the mortality was frightful and few returned but those who were brought back sick to Ward's Island. It was said at the time that with an allowance of eighteen inches for each body, laid side by side, the railroad track could have been covered with the dead from ocean to ocean.

During my service in the hospital I took no holiday, and, with the exception of about three months and a half, while I was sick with ship fever, I was on continuous duty for three years in a service from which a number died and and many were obliged to resign in consequence of imperfect health. Yet I had a great deal of recreation, pleasure and time for reading. During my first winter I built after my own design a sailboat about nineteen feet long, beginning with the centerboard box and building out from that to the stern and bow. I was said to have disregarded all rules applicable to boat building, and yet I turned out a so-called nondescript which I used for two years. She was so active in her movements that I christened her "Senna and Salts," a combination probably known to few of you in practice to-day, but one which was speedy in movement and decided in action. I should state that I have a natural turn for mechanics, and at one time I possessed a collection of tools selected from almost every trade. I could carve in wood, and there was scarcely anything I wanted in wood or iron which I could not reproduce by some method of my own, unless the skill of an expert was needed. I will have to refer again to how much a knowledge of mechanics aided me in the development of my work in plastic surgery.

About two weeks before the expiration of my service as one of the Resident Physicians my Visiting Physician resigned. To my astonishment and satisfaction I received in a few days an official communication from the Board of Commissioners of Emigration notifying me I had been appointed a member of the Visiting Board of Physicians, and I was informed that the election had rested on my record of service. I was twenty years the junior of Dr. J. M. Carnochan, who had been the youngest member of the board, and at the first meeting I became the secretary. My salary as Visiting Physician was four dollars a day, on which I soon married. With the prospect of building up a practice, I was fully contented, when I was so fortunate as to receive twenty-five cents cash for a visit among the tenement houses, then situated along the East River below Fourteenth Street. I received about fifty dollars for my first year's work in private practice, but after that time I advanced rapidly.

Some six months after my appointment and during the winter of 1853, I nearly lost my life in the discharge of my duty. There was a blizzard, with a fall of snow I have never seen equaled, and for two days there was scarcely an attempt made to travel on foot or by vehicle. I lived in Fourth Avenue near Twelfth Street, and in front of my door was the Harlem & New Haven Railroad, which had its depot then near the corner of Canal Street and in Broadway. Early in the morning of the third day a car passed with a steam snow plough to open the way. I decided it was my duty, as the youngest man of the Medical Board, to make an attempt to reach the hospital on Ward's Island, where I knew no Visiting Physician had been able to report for service for four days. I was two hours on this train reaching One Hundred and tenth Street, and where the railroad crossed the Harlem flats there was an open waste covered with snow three or four feet deep, and frequently I found it in drifts over my head. It was several hours before I was able to reach the ferry house on the Harlem River, and, notwithstanding the thermometer was at zero, I was in a profuse perspiration, in consequence of the great exertion I had made. The river had been frozen over, as well as the greater part of Hell Gate, but it was flood tide, and when I reached there the river was filled with large cakes of ice piling up on each other from the force of the current. I could induce no one among the ferry men to accompany me in my effort to cross the river; but this did not discourage me as I was strong, self-reliant and foolhardy. I took a light flat-bottom skiff with each oar secured in a grummet, crossed the river by dragging the boat from one piece of ice to another, and several times fell in, getting wet above the waist. I finally succeeded in landing on the island with

my clothing frozen on me and in quite an exhausted condition. I got a drink of brandy and visited my own patients, together with a number in the other services, wherever my advice was needed. I recrossed the river in the same manner, but with less exertion, as there were a number of open spaces where I was able to row. It was just growing dark when I reached the little railroad station on the viaduct, which I found empty, without a fire and with the prospect of freezing to death before morning if no train passed. I should have remained at the hospital, but it was before the days of local telegraph or telephone, and I was unwilling to subject my family to so many additional hours of uncertainty. A train come up fortunately soon after and stopped on my signal, so that I reached home after twelve hours' exposure, with my strength greatly overtaxed and weak from fasting all day, as I had neither time nor thought at the hospital to take any food.

I have detailed these circumstances as my experience was an interesting one from a medical standpoint. To my surprise I took no cold and next day suffered only from fatigue, but after some days I developed rheumatic fever and lay for six weeks on cotton, during which time I believe not a joint in my body, except in my spine, escaped the inflammatory action. After I began to sit up I suffered for a few days from sudden attacks of palpitation and from syncope. Later on I twice dropped out of my chair unconscious for a moment in consequence of a draft of cold air caused by a window being opened suddenly behind me. But I convalesced rapidly and from that time I have never been conscious of any heart disturbance beyond an occasional intermitting pulse not due to organic disease. I can at my age ascend a stairway, so far as my broken leg will allow me, with as little disturbance of my respiration as at any time in my life.

My last service as Visiting Physician at the Emigrant Refuge Hospital was rendered in the early summer of 1854. The physician who had been on duty for the shortest time took charge, according to rule, of any emergency ward which had to be opened, and did so in addition to his regular work. I thus became responsible for a cholera ward where, during my six weeks' service, eight hundred cholera cases were admitted, generally in a state of collapse, as the greater portion were picked up in the slums of the city. I had a number of assistants, but the responsibility of my position was a fearful one. I spent about four hours a day going from one bed to another, aiding the attending physician, and was present at nearly all the post-mortem examinations. On two occasions, when a larger number of bad cases than usual had been admitted, I found next morning all the patients and the nurses had died since my last visit. Yet very few cases died in the hospital proper among the nurses or patients where they received proper and prompt treatment at the beginning. The nurses employed in the cholera wards were well paid for extra work, so that they were overworked and they relied too much on stimulants to keep up their strength. Many priests died, and I believe no record was kept of the number who lost their lives at Ward's Island. My strength was greatly taxed, and I became so saturated with the poison that I was seldom free from some of the premonitory symptoms, but these were readily kept in check. My rest was greatly disturbed, as I would be often seized in my sleep with cramps in my fingers, toes and in the calves of my legs. The physician who relieved me was very apprehensive for his safety and died in a week. He was the only physician who lost his life in this service. That I did not die during my service in the Emigrant Refuge Hospital made me think afterward that God probably preserved my life for some other work.

After I became associated with the Woman's Hospital I gradually realized that the chief work of my life was to be done there. What was required of me became evident. With a new field of study before me, and with a mass of material at my disposal, greater than anyone else had ever controlled, it was made evident that my mission was to teach.

It would be but repetition should I attempt to give here any detail of my experience connected with that service. I have already done this in an address by me on "Reminiscences of the Founders of the Woman's Hospital Association," published in the *New York Journal of Gynecology*, May, 1893; and afterward with some additions reprinted in the *American Gynecological and Obstetrical Journal*, April, 1899. To a greater extent I have treated of the subject in a paper, "Personal Reminiscences Associated with the Progress of Gynecology," read before the American Gynecological Society at the meeting in May, 1900, and published in the transactions of the Society for that year, and which was also printed in the *American Gynecological and Obstetrical Journal* for May, 1900.

In these papers I have also attempted to express my great obligation to my old friend Dr. J. Marion Sims, with whom, during our joint service of five years and a half at the Woman's Hospital my relations were as close as that of a son. If he had not given us his speculum, which opened the way for investigation, a knowledge of the use of silver wire and his perfect technic, I would never have been known to the world in connection with gynecology. Beyond the stated limit as to time, our work, however, lay on different lines and was viewed from different standpoints without the slightest connection one with the other.

It is now necessary for me again to refer to my experience at the University of Virginia to make clearer some of the difficulties which I managed to overcome to some extent in after life, and to show that even my limited tuition there proved of the greatest benefit. Mathe-

matics was the especial stumbling block in my course at the University, and yet I can now realize what advantage I would have gained from the aid of a tutor as is furnished to-day at our universities. I certainly am not totally deficient in the mathematical instinct, although I have never learned the multiplication table, at least not having acquired it in early life, I have made no effort to accomplish it in later years, as by some mental process of my own I am able to get at what I need. After I had been some years in practice and a married man with children, I managed to find time to go over a college course with private teachers. Mathematics did not interest me as a whole, but I found the study of geometry very fascinating. That I learned to cipher is shown by the series of statistical tables which I prepared for my work on "The Theory and Practice of Gynecology," on which special work I spent nearly two years and made every calculation myself. These details go to show, I think, that defective teaching at the beginning is generally the cause of failure even with the most stupid child.

The course of lectures on Natural Philosophy, as delivered by Prof. Wm. B. Rogers, was the only one which interested me. Consequently this line of study occupied much of my attention when years after I went over the college course. I thus learned to test every operation in plastic surgery by some principle of mechanics and was frequently able to judge of the value of any procedure devised by myself or another, without having actually to perform the operation. In my experience no plastic operation has ever been perfected to be of any practical value until it could stand a mechanical test. I will state, in addition, my conviction that no one in plastic surgery has ever been a successful operator, nor able to repeat to advantage the successful work of others, without possessing a mechanical instinct. This statement will doubtless be criticized, but by no one able to recognize the difference after a surgical procedure between a successful result and a failure.

I received my first professional recognition by being made a member of the Berlin Obstetrical Society, after publishing my work on "Vesicovaginal Fistula from Parturition and Other Causes," in 1868, and shortly after I was elected a member of the Medical Society of Norway.

My work on "The Principles and Practice of Gynecology" was published in 1879 and went through three editions in this country within fifteen months. All three editions were reproduced in London and translations into German and French were printed in Leipzig and in Paris. I have been informed that one was also made into Spanish, but the manuscript was lost by some accident. Whatever may have been the value of the work it was essentially original from cover to cover and it embodied the experience of the best part of my professional life. It was published unfortunately just before the full development or adoption of the aseptic treatment as applied to abdominal surgery. In this respect the work was considered by some not full enough in detail, and yet I am still of the opinion that I taught the essentials. Others judged me not to be sufficiently advanced in my teaching, as I did not fully endorse all the surgical procedures of the period, but time has certainly sustained my judgment. A fourth edition of this work was never called for and fortunately, as I might have laid myself open to the charge of plagiarism. For everything I taught of special importance has gradually become absorbed into the practice of the profession during the past twenty-five years, and incorporated into every new book as common property, so that the origin of much has been lost.

I sometimes greatly enjoy a joke in a quiet way. It has not been more than six months since a physician from the West visited New York "to perfect himself," as he expressed it, and who, happening to hear of me somewhere, called to see me as one of the sights. As we had nothing in common I turned the conversation on his practice. He was, of course, a specialist in gynecology and for half an hour entertained me with an acount of the advantage to be derived from hot water vaginal douches, dwelling on the importance of the dorsal position. I showed so much interest that he left with a gratified expression in consequence of having taught a New York doctor something new.

For writing "The Theory and Practice of Gynecology" I received the degree of Doctor of Laws from the Jefferson Medical University, the trustees of the Jefferson Medical College, Philadelphia, being the Governing Board. The Academical Department of this University, situated in Pennsylvania, has been in active operation for over a hundred years. This institution has conferred this degree, I have been informed, but five times, and I believe only on graduates from the medical department. This honor I share with Dr. Marion Sims, who graduated in 1836.

In 1898 I issued "The Emmet Family, with Some Incidents Relating to Irish History, etc." The work also contained an extended memoir of my father. For writing this book I had the honor of receiving the Laetare medal from the University of Notre Dame, Indiana. In 1903 I published an extended work, "Ireland under English Rule, etc.," a labor of years and on the merits of which the public has yet to render a verdict. I have written a number of articles on professional subjects, which have been published in the medical journals at home and abroad, and with which most of you are familiar. I have written various papers and addresses relating to American and Irish historical subjects, of which I have no record.

It seems fitting on this occasion, probably the last with which I shall have any professional re-

lation, that I should bring into more prominence certain points which I have omitted in the past from a feeling of delicacy, or the advisability of referring to which has since become more evident.

I can claim that my earliest important contribution to surgery was in teaching the great necessity for cleanliness, with regard to both patient and instruments, and this I taught to a degree for which none of my professional friends appreciated the need. With the aid of dear old Margaret Brennan, the nurse, I gained results in plastic surgery, thirty-five years ago, which in later years I found impossible with any trained nurse. She could give a glow of immaculate cleanliness to a vagina, in preparation for an operation, I have never seen equaled. She served God every moment of her life in her vocation as a nurse. All present who have ever served in the Woman's Hospital can recall her placid face; as she stood hour after hour holding the speculum immovable. I have sometimes seen a slight movement of her lips and I have said to her, in an undertone, "Margaret, who are you praying for now?" Her answer was: "For you and everybody," which was literally true, as her whole thought was for everybody but herself. For faithful and untiring service; skilful nursing; close observation and observance of detail, the world owes Margaret Brennan an unrecognized debt of gratitude, to an extent which can never be appreciated, for all she contributed toward the development of gynecology.

My work on Gynecology gives full evidence of many remarkable results obtained in abdominal surgery with her assistance and at a time when we had nothing but the skilful use of ordinary turpentine soap and hot water for preparing the patient, or the instruments. Those of you who are familiar with my early teaching at the Woman's Hospital have heard me reiterate in my clinics as an aphorism: "The death warrant of many a patient is carried under the finger nails of the operator." Before I ever heard of the existance of Lister, I taught this, and yet no man has ever appreciated more than I have the value of the former's work in educating the world as to the importance of asepsis. When the first Woman's Hospital building, at Forty-ninth Street and Park Avenue, New York, was opened under my charge, in 1868, as Surgeon-in-Chief, I had a steam or Russian bath in operation for the purpose of cleansing and where every case was prepared by several baths for a laparatomy and with the free use of turpentine soap. In 1871, when a medical board was formed to take charge of the service, none if my colleagues appreciated the necessity for any such preparation and all voted against me when it was decided to tear out this bath to make a reception room for the patients of the outdoor clinic.

Much good was accomplished by demonstrating the existence of lacerated cervix and the close relation of the injury to epitheloma, if it be not the actual cause. The operation for repair filled an important place, but a still greater advance was made on showing the greater necessity for amputation, when it was discovered by me that in many cases the character of the lesion had become changed owing to the use of asceptic midwifery. Yet, it is difficult to determine if the good which has been obtained under all favorable circumstances, counterbalances the evil from the great abuse which has existed from operating unnecessarily, as well as from neglect on the other hand where an operative procedure should have been employed. The discovery of this injury and operation gave me a world-wide reputation and yet I have never been satisfied. From some unexplainable cause the profession at large has never mastered the subject in detail sufficiently to enable the good derived to compensate for the amount of injury resulting from ignorance or want of dexterity.

My success from operating to cure the injury and finally from having been the means of preventing the occurrence of vesico vaginal fistula, has given me far more gratification than I have ever had in connection with laceration of the cervix, and yet the extent of my work in relation to the former is comparatively but little known.

Dr. Sims made it possible by his teaching to close every fistula of any extent by means of silver wire wherever it was possible to bring the edges together free from tension. I developed the plastic methods by which nearly every case of greater injury could be cured in time, as I demonstrated in my book on this injury, published in 1868. Dr. Sims, after going abroad at the beginning of the Civil War, never had the opportunity to advance beyond the work which he described in his remarkable paper read before the New York Academy of Medicine previous to his departure. I gained good results where others had failed, or, in other words, I cured the supposed incurable cases sent me, but found it difficult to transmit my experience. This would have been a lamentable result but for the fortunate circumstance that I was able to demonstrate the cause of fistula and by the removal of this cause, the injury has become of rare occurrence, or simple in character. I read a paper at the meeting of the American Gynecological Society, in 1878, at Philadelphia, and published in the transactions for that year, by which I showed the lesion was always the result of delay in delivery and not from "meddlesome midwifery," as was then the accepted belief; and I showed that where ergot had been used, which was the common practice, the injury was much greater. I then promulgated the important point that an attendant would be most culpable of neglect if delivery were not accomplished without delay in every case when the head ceased to recede after a pain. Unless impaction has taken place the head will recede after every pain except just at the moment after it has passed from the uterus, but it is then so high that no injury

could result in a normal pelvis. This paper revolutionized the then accepted obstetrical practice throughout the world, and ergot itself has ceased to be used. Fifty years or more ago this frightful injury was so common that the Woman's Hospital was established for its cure, and to-day it may be said that it should never occur, unless such a degree of deformity exists that delivery cannot be accomplished, or an abdominal section is impossible.

I introduced the use of scissors into the surgical work of gynecology as a substitute for the knife and devised nearly all the different forms now in use, although others have gone over the same ground since. Without the aid of these instruments there would have been but little advance made in plastic surgery. There are other points which, in justice to myself, should be properly presented, and much which may hereafter be placed to the credit of American surgery, but I have said enough to indicate the course for further information.

This dinner has already given me a new lease of life and I feel as young as I did at the age of forty, but, unfortunately, my injured leg brings me down to close bearing and to the gait of a very old man. I, however, am enjoying life and every hour of it. I have been fortunate in having always had some hobby in active operation. I urge all of you to cultivate such an accomplishment as an investment for your old age, which will never cease to bear interest, and to try to get all the fun you can out of it. My present hobby is the study of the Irish language, which I began after my seventy-fifth year, and it has not only afforded me steady occupation, but intense enjoyment.

In saying farewell to you, one and all, it is my sincere prayer that as you advance in years it may be your good fortune to have your life pass on to the end with as smooth and restful a current as has been mine so far. I bid you farewell, and to many from different and distant sections of the country, it must, I fear, be for the last time.

FURTHER EVIDENCE OF IMMUNITY AGAINST CANCER IN MICE AFTER SPONTANEOUS RECOVERY.[1] [2]

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IN this communication it is proposed to summarize briefly the results of certain immunity experiments which constitute a part of a general investigation being carried on at the present time on the Jensen tumor mice by the staff of this laboratory. In previous publications[3] it was shown that the blood serum of spontaneously recovered mice exerted an effect upon growing tumors in other mice. It was pointed out, however, that the method employed (although affirmed by pathological findings) failed to give proof of the existence of a specific immune body because of the impossibility of determining the course of development which a tumor would have taken if untreated. We have been led, therefore, to adopt two other methods in the hope of demonstrating experimentally the existence of an immune body:

1. The re-inoculation of spontaneously recovered mice.

2. The admixture of cancer material previous to inoculation with the serum of recovered mice, the results being controlled by mixing material from the same tumor with normal serum or salt solution.

Up to the present time (June, 1905) about 1,600 mice have been employed in this laboratory in various experiments relating to the transplantation and development of the Jensen tumors. If we exclude from this number those which have been employed for experiments in which filtration, the use of high temperatures, chemicals, etc., might preclude the possibility of development, and those which, on account of infection or other causes, have died shortly after inoculation, it may be said that about 1,100 mice have yielded about 350 tumors, of which number about 300 have developed and caused the death of the mice, the remainder having recovered spontaneously.

Owing to extreme variability in the time of development of tumors it is often difficult to distinguish transient inflammatory masses from true tumors. The difficulties have been largely overcome, however, by the adoption of a system of diagrams or "charts" of the tumors made at stated intervals and kept as permanent records. The study of over 300 series of such diagrams, covering in some cases periods of several months, makes it apparent that whereas early inflammatory masses frequently make their appearance shortly after inoculation, they differ from true tumors, by either being absorbed, or ulcerating out in the course of two or three weeks. A true tumor, on the other hand, develops somewhat later, generally from two to four weeks after inoculation, and is, as a rule, more consistent than the inflammatory masses referred to above. The speed of development of a tumor is subject to enormous variations, the most rapid having shown a weight of ten to twelve grams within twelve days of their first appearance, others having required several months to reach a weight of two or three grams. In some cases an early developing tumor remains stationary for a con-

1 Received for publication, July 15, 1905.

2 Contribution No. 31 to the Publications from the New York State Cancer Laboratory, H. R. Gaylord, G. H. A. Clowes and G. N. Calkins.

3 Preliminary report on the presence of an immune body in the blood of mice spontaneously recovered from cancer (adenocarcinoma, Jensen), and the effect of this serum upon growing tumors in mice infected with the same material. By H. R. Gaylord, M.D.; G. H. A. Clowes, Ph.D., and F. W. Baeslack, B.A., MEDICAL NEWS, January 14, 1905.

Preliminary communication regarding an immune body capable of inhibiting the development of cancer in mice (adenocarcinoma, Jensen. By G. H. A. Clowes, Ph.D., Bull. Johns Hopkins Hospital, Vol. XVI, No. 169, April, 1905.

siderable period and subsequently either goes on to full development or retrogresses and eventually entirely disappears, nothing but a small residue of connective tissue being found at autopsy.

It is very difficult to determine exactly what constitutes a spontaneous recovery from a true tumor. All early inflammatory swellings are, of course, excluded, as, also, small indefinite grains which make their appearance for a short time only. We have for the present adopted as a standard the presence of a growing tumor not less than three weeks after inoculation, reaching at some period of its development a volume of 20 cubic millimeters. The recovery from such a tumor may be said to constitute a true spontaneous recovery, whereas the recovery from smaller tumors must be designated as somewhat doubtful.

1. *The Re-inoculation of Mice Spontaneously Recovered.*—Up to the present date 30 mice which have recovered spontaneously of genuine tumors or have been cured of their tumors by serum injection have been re-inoculated, and of this number 10 have been inoculated for the third time. In no case has a tumor developed as a result of re-inoculation on a mouse which had previously recovered from a true tumor, as designated above, whereas mice which had either shown nothing on the first inoculation or only a rapidly subsiding inflammatory process have produced tumors.

One group, 209, including eight mice, of which seven—A, B, C, D, E, F and H, were re-inoculated, is of particular interest and may be selected as an illustration of this point. On March 5 this group was inoculated for the first time with normal cancer macerated with salt solution in the proportion of 1:3, each mouse receiving ½ c.c. subcutaneously in the back of the neck. On March 31 A had a tumor the size of a pea which had first been recognized on March 16. On the same date (March 31) E and H had tumors of slightly smaller size but fully equal to the requirements enumerated above. An examination of the chart book for this period shows that in the case of these three mice, A, E and H, the tumors which first appeared about ten days to a fortnight after inoculation had reached a maximum about March 31, twenty-six days after inoculation, and had then steadily diminished in size until between April 21 and April 30 they had all three practically disappeared.

Of the five remaining mice of this series, G died on April 10, and the four mice, B, C, D, F, never showed true tumors. The seven survivors were re-inoculated June 2, three months after the first inoculation, with a tumor which was more virulent than that previously employed. An examination of the chart book on the day of writing this paper (June 26), twenty-four days after the second inoculation, shows that A, E and H have no tumors, B, C and F have fair-sized growing tumors and D is dead. It will thus be seen that the three mice which recovered from true tumors on first inoculation now possess apparently an immunity against further inoculation, whereas the three which failed to show tumors on the first inoculation now succumb to the more virulent material.

Lot 209 was one of several series re-inoculated on or shortly before June 2. In all, 66 mice, 15 of which had recovered spontaneously from true tumors, and 12 from questionable tumors, were re-inoculated on this occasion. At the date of writing this paper, twenty-six days after inoculation, some 17 tumors are found to be developing in the entire series, some of which will doubtless recover spontaneously. Fifteen cases of unquestionable recovery show no tumors. In addition to these, one tumor is developing on a mouse which originally recovered from a tumor which fell slightly below the requirements enumerated above, and two other tumors are to be found on cases of questionable spontaneous recovery in which small grains made their appearance intermittently and for short periods. In an entirely different series a tumor occurred on re-inoculation of Mouse 179 E, which three months previously had recovered from a small, soft tumor about the size of a buckshot, but since the tumor in question was less than 3 mm., and only appeared for two or three days, we considered outselves justified in excluding it from the cases of true spontaneous recovery and including it among those of questionable tumors. We have unfortunately been compelled to use a large number of the best spontaneous recoveries for the experiments which will be dealt with under the second head, but as all back series are now being re-inoculated, we hope to be able to report on a much larger number of experiments of this nature in the course of the next six months.

2. *The Admixture of Cancer Material Previous to Inoculation with the Serum of Recovered Mice.*—Our early experiments having made it appear probable that the serum of spontaneously recovered mice, when used in relatively large doses, possessed immune properties capable of interfering with the development of small tumors on direct injection, it seemed advisable to observe the effect exerted by a serum of this nature when admixed with macerated tumor materials previous to inoculation. For this purpose it was necessary to obtain a serum of sufficient virulence to produce an effect when distributed over a large number of cells, and to use a tumor sufficiently attenuated in its virulence to be susceptible to the influence of such a relatively diluted serum. It had been found by previous experience that young, small, actively growing tumors do not, on injection into fresh mice, produce tumors with any degree of certainty, and that for successful transplantations it is essential that a tumor should be, at least in part, necrotic. It had further been observed that large aggregates of cells produce tumors with greater facility than does material from which the connective tissue

had been removed by fine rakes or by filtering through coarse gauze.

At the time at which these experiments were commenced we had not a sufficient number of carefully charted spontaneous recoveries at our disposal to afford us any idea regarding the conditions under which the highest degree of immunity might be expected to develop. In some cases mice which had simply recovered from an inflammatory process were probably mistaken for true spontaneous recoveries and used as such, with more or less negative results, which are, however, included in the experimental series tabulated below. Another point regarding which we have at present very little information, concerns the period after spontaneous recovery, when the maximum degree of immunity may be found, and on account of the extreme delicacy of the reaction, it is to be expected that great difficulty will be experienced in throwing light on this point.

In order to compare the relative effect produced by the serum of suitable spontaneous recoveries, and of comparable normal mice, the following experimental procedure was adopted: A suitable tumor was removed and admixed with salt solution in a sterilized mortar in the proportion of 1:3. Three equal portions were measured into three sterilized mortars. To the first normal serum was added; to the second, an immune serum, and to the third, salt solution. The mixtures were then thoroughly stirred and allowed to stand from one to two hours and subsequently uniform doses were injected into three series of mice. The difficulties enumerated above, more especially that of obtaining absolutely comparable uniform materials on account of the presence of small aggregates of cells, materially influenced the results and may have had something to do with the appearance of some tumors in the immune series. However, an inspection of the accompanying table shows a distinct advantage in favor of the immune series.

A summary of the experiments of this nature carried out from February 22 to April 26 shows that of 89 mice employed in the immune series, 5.6 per cent. developed large, rapidly-growing

TABLE OF RESULTS.

Normal Series.

Serial Numbers.	Date of inoculation.	Number of mice used.	Rapidly growing tumors.	Slowly growing tumors.	True spontaneous recoveries.	Questionable spontaneous recoveries.	Survivors two months after inoculation.
192, 193.	February 22.	66	24	1	10	14	30
195, 197.	February 24.						
198, 199, 200.	February 28.						
207, 208, 209.	March 3. . .	24	0	1	5	4	13
243, 246, 247, 248.	March 22 . . .	20	5	1	0	2	10
300, 303, 304, 307	April 26	23	4	6	1	2	10
Total.	. . . . .	133	33	9	16	22	69

IMMUNE SERIES.

Serial Numbers.	Date of inoculation.	Number of mice used.	Rapidly growing tumors.	Slowly growing tumors.	True spontaneous recoveries.	Questionable spontaneous recoveries.	Survivors two months after inoculation.
194, 196, 201	February 22.	29	5	2	3	10	22
	February 24.						
	February 28.						
204, 205, 206.	March 3. . . .	24	0	1	2	3	19
244, 245	March 22	14	0	0	0	3	5
302, 303, 305, 306.	April 26. . . .	22	0	3	0	2	16
Total.	. . . . .	89	5	6	6	18	62

SUMMARY.

	Normal Series.		Immune Series.	
Total number of mice employed.	133	Per cent.	89	Per cent.
Rapidly-growing tumors.	33	24.8	5	5.6
Slowly-growing tumors	9	6.8	6	6.7
Total tumors	42	31.6	11	12.3
True spontaneous recoveries.	16	12.0	6	6.7
Questionable spontaneous recoveries.	22	16.5	18	20.0
Total spontaneous recoveries	38	28.5	24	26.7
Survivors after two months.	69	51.9	62	69.7

tumors, and 6.7 per cent. slowly-growing tumors, giving a total of 12.3 per cent; whereas of the 133 mice employed in other series, including normal serum, cachectic serum (derived from dying tumor mice), and salt solution, 24.8 per cent. showed large, rapidly-growing tumors and 6.8 per cent. slowly-growing tumors, giving a total of 31.6 per cent. There appeared to be rather more true spontaneous recoveries in the normal series than in the immune series, but the figures in question, 6 in 89 and 16 in 133, are rather too small for any positive conclusions.

It is of particular interest to note that two months after inoculation 70 per cent. of those used in the immune series are still living, while 51.8 per cent. only of the normal and other series are living. To the actually recorded figures for tumors should be added four mice in the immune series and one in the normal series, which at autopsy showed small metastases in the lungs and other organs, but no external tumor.

We are inclined to believe that normal serum produces a slight effect as against salt solution, but the differences are too small to be considered at the present stage of our experiments. An inspection of the chart books of certain groups in which the immune serum produced the most marked effect, shows that not only was the number of tumors in the immune series smaller and the number of survivors larger than in the normal series, but also tumors made their appearance rather later in the immune series, a fact which is indicated in the tables by the relative proportions of 5 quick- and 6 slow-growing tumors in the immune series, as against 33 quick- and 9 slow-growing tumors in the normal series.

It is quite conceivable that a relatively feeble immune serum, when brought into contact with large aggregates of cells, is absorbed by those on the surface and fails to penetrate to the interior of the mass. The difficulty of producing tumors with small quantities of material or with single cells, makes it impossible, at present at least, to eliminate this source of error.

Whereas in the early series in which the macerated cancer materials were simply admixed with salt solution, mice were never known to recover spontaneously from tumors beyond the size of a large pea, there have been eight cases of recovery from remarkably large tumors in some of the later series in which the materials had been admixed with either normal or immune serum previous to inoculation. This is a point on which future experiments should throw further light.

Summary.—(1) Evidence has been afforded that mice which have recovered from cancer possess an active immunity against further inoculation. (2) By mixing cancer materials previous to inoculation with the serum of such spontaneously recovered mice, and comparing its effect with that of cancer materials from the same source mixed with serum from normal mice, it has been shown that the former exerts an inhibiting effect, and that the percentage of tumors is much smaller and the percentage of mice surviving the treatment is larger in the immune than in the normal series.

Although we fully realize the fact that many more experiments must be undertaken, and that more positive results must be obtained before the presence of an immune body in mice spontaneously recovered from malignant tumors can be proved, we nevertheless feel justified in announcing again that all evidence thus far obtained in this most difficult and dimly-lighted field of research is distinctly in favor of the hypothesis.

FEMALE TYPE OF HAND IN EXTENSION: OR SIGMOID CARPUS.

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UNDER the direction of Dr. William Browning, who suggested that there was apparently a natural difference to be observed in the male and female hand when held in a position of extension, the following facts have been collected and are recorded for the purpose of drawing attention to a characteristic position assumed in the extension of the hand and wrist by the female. For convenience in description, this position when present and the type of hand formed thereby will be referred to as the sigmoid carpus, although this term does not include all the anatomical parts concerned.

Briefly, by the sigmoid carpus is meant a double or S-shaped curve of the wrist and hand involving the portion of the upper extremity from the tips of the fingers to, and including, the lower ends of the radius and ulna. This S curve is made up of two parts; one being formed by flexion at the wrist where the carpus articulates with the ulna and radius, and the other by overexertion at one or more of the three finger joints (the first and second phalangeal and the metacarpophalangeal or knuckles). Viewed from above, the proximal arc of the S is convex and located at the wrist joint, while the distal arc is concave and located at one, two or three of the phalangeal articulations. From below the reverse, of course, presents; a proximal concave joined to a distal convex arc. The sigmoid carpus may best be observed, however, in profile from the ulnar aspect of the hand, the characteristic appearance being somewhat obscured on the radial border by the thumb.

Method of Examination.—In any examination of a patient one of the most common directions given is to hold out the hand for inspection as to the presence of tremor, and it seems as though this request conveyed a different idea to almost every individual, so various are the positions assumed in response. In observing the presence

of the sigmoid carpus, a uniform position should be maintained with each individual; he should be made to stand erect and then extend both hands in exactly the same manner—arms parallel to each other, the elbow in full extension and the dorsal surface of the hands on a level with the shoulders. Under these circumstances differences of position, both natural and acquired, will appear. These variations are of interest from a morphological standpoint, and further investigation may prove that they are of value also in the diagnosis of some morbid conditions. The different position of the joints and curves of the hand enumerated below, are the findings apparent on viewing a large number of hands from above and from the ulnar side of each hand, when held in the uniform position described.

Possible Positions of the Joints.—(I) Positions of the wrist-joint. (*a*) This may be held in full or partial flexion (the proximal arc of a sigmoid carpus). (*b*) It may be held in the position ordinarily considered that of extension in which the hand and forearm are in a straight line. Anatomically, however, this position is just half way between the extremes of possible flexion and extension at the wrist-joint, and, as will be shown, constitutes the masculine type of wrist in extension. (*c*) A position of hyperextension at the wrist is also possible; as a matter of fact this is practically never seen in the examination of hands in extension. (II) Positions of the finger-joints. (*a*) One or more of these three may be hyperextended; this condition when present forms the distal arc of a sigmoid carpus. (*b*) These joints may be in the position ordinarily thought of as extension, the dorsum of the hand forming a straight line with that of the fingers. The hand and fingers thus appear level, and this position of the fingers goes to make up the masculine type of hand in extension. (*c*) The joints may be flexed to a greater or less degree, causing the dorsum of the fingers to appear convex from above.

Varieties of Dorsum.—A. The dorsum of the wrist (carpals and ends of radius and ulna) may appear from above and from the side as either convex, concave or level. When convex (I*a*) the wrist is in flexion and the type is that of the female. When level (I*b*) the wrist is in ordinary extension and the type is that usually seen in the male. The concave dorsum (I*c*) is hardly ever seen here. *B.* The dorsum of the hand (metacarpals and phalangeals) may likewise be either convex, level or concave. Least frequently seen is the convex dorsum (II*c*); it is hardly ever found normally in the female, and even its occasional appearance in the male is usually the result of rheumatism or occupational influence. Rough, heavy work with the hands and fingers determine its presence, and also traumatisms such as result in the "baseball" finger. Coming now to the level and concave types (II*b* and *a*), extended observation has shown that the level formation is so frequently found in males and the concave in females as to be in fact apparently the respective types for the sexes.

It is a concave dorsum of the hand formed by hyperextension of the finger joints, and making up in connection with a convex and flexed wrist the full sigmoid carpus, to which attention is called, as being present normally in the majority of women, and conversely not often seen in men unless for special or exceptional reasons. The masculine type of hand in extension shows a level dorsum both of wrist and fingers, so that the forearm, wrist and hand, including the fingers, appear upon the same level when held out.

Examination of Adults.—A series of healthy individuals, thirty males and thirty females, of varying ages between twenty and sixty years, was examined with the idea of ascertaining the position in which their hands were naturally held in extension, and the difference, if any, between the sexes on this point. They were taken in regular order from dispensary, private practice and other sources without picking or choosing, except that some subjects were excluded on account of deformity from rheumatism and injury.

Fig. 1.

Normal male type; forearm, wrist, hand and fingers in a straight line.

Of the thirty adult males, 4 presented a convex dorsum; 22 the level, or masculine type of dorsum, while only in the remaining 4 was a concave dorsum present in the hand, which, with a flexed wrist caused these few to exhibit the full sigmoid curve.

Of the thirty adult females, 1 (formerly rheumatic) presented a convex dorsum of the hand; 3 showed the level or masculine type of hand and wrist, while the remaining 26 showed the full sigmoid curve more or less pronounced, and made up of a dorsum concave at the hand with a flexed wrist. About 85 per cent. of both males and females, therefore, presented the type of hand believed to be normal for the respective sexes.

It should be stated in this connection that half of the subjects in the female group were taken from the working classes and half from the leisure. Among the latter were found the hands exhibiting the most concave form of dorsum and the most pronounced sigmoid curves in full, while the less concave types of dorsum and the less striking forms of sigmoid carpus were found among those more accustomed to manual labor.

This would indicate that while external influences may hinder the development, or later, change the amount of extension at each of the phalangeal or at the metacarpo-phalangeal joints, the sigmoid carpus will still remain as a characteristic and permanent finding in the female.

Examination of Children.—In view of the above facts it became of interest to learn whether the sexes are similar in childhood as to this con-

Figs. 2 and 3.

Normal female type, right and left; showing the double or sigmoid curve, proximal at A and distal at B. The latter half of the curve is formed by hyperextension at the metacarpophalangeal and at each of the interphalangeal joints, and shows marked curving of the fingers.

formation, and, if so, at what period the differentiation begins. For this purpose 300 school children were examined; 50 girls and 50 boys of the age of five years, a like group at the age of ten, and a third at the fifteen-year period. The following table shows the number of those of each sex in whom the sigmoid carpus was found in one or both hands at the three age periods here indicated. And the results show a variation of much interest.

AGE.	SEX.	SIGMOID CARPUS. (Bilateral.)	(Unilateral.)
5 years. . . .	50 M.	12	0
	50 F.	10	4
10 years. . . .	50 M.	10	1
	50 F.	18	9
15 years. . . .	50 M.	4	6
	50 F.	99	4

It will be seen that the sigmoid carpus was present in both hands in 12 of the 50 boys and in 10 of the 50 girls at the five-year period; unilaterally also in 4 girls. In the ten-year group the sigmoid carpus was observed in 10 boys and and in 18 girls on both sides; and in 1 boy and 9 girls unilaterally. At the age of fifteen years only 4 boys out of 50 presented the feminine type of hand on both sides, while in 29 of the 50 girls it had been thus developed, 6 boys and 4 girls of this group also showing it in one hand only. This progressively increasing appearance of the sigmoid type in females was, as might be expected, practically in direct proportion to the increase in those presenting a concave dorsum at the hand. Flexion of the wrist (the other factor in the make-up of the sigmoid curve) was present, of course, in all those recorded above; and it may also be stated that it was absent with very few exceptions in all the others, *i.e.*, those not showing the full sigmoid curve.

Besides these 300, a number of other children under the age of five were examined; it was difficult to induce these to assume a uniform position, but many of those of both sexes who could be made to extend their hands satisfactorily, either presented the feminine curve or simulated it because of the amount of adipose tissue present about the wrist and hand at that time of life. The gradual change with growth and assumption of a concave dorsum and flexed wrist here described as the feminine type is, however, entirely independent of any fleshiness of the parts.

Fig. 4.

Variety of female type showing hyperextension at the metacarpophalangeal joint only, the fingers being straight.

Bilateralism.—In the 60 adults recorded, each individual showed practically the same type of hand on both sides. In the children examined a certain proportion of each age group presented a different type on either side. The figures for this finding were as follows: at five years, 1 boy and 6 girls; at ten years, 2 boys and 11 girls; at fifteen years, 10 boys and 4 girls. A reference to the table will show the number of these who exhibited a full sigmoid carpus in one or the other hand, though the figures appear to indi-

cate nothing definitely on the subject of bilateralism. It may be suggested, nevertheless, that the girls of the unilateral groups in the table may have been in process of developing the sigmoid type, the latter appearing in one hand earlier than in the other; while of the same groups of boys these individuals may have previously presented the sigmoid type in both hands and have been at the time of examination acquiring the masculine type in one hand before the other. In answer to the question which may arise as to whether the sigmoid carpus was found to predominate in the left or in the right hand in the unilateral groups, the record shows nothing distinctive at any one of the three periods; taking these as a whole, however, its appearance was found to be about evenly divided between the two hands.

Many external influences may cause the concave dorsum and consequently the feminine type to be lost either partially or wholly, or increased, in one or both hands. Change in type by alterations in the flexion of the wrist due to external causes have not been so frequently observed. But aside from such variations as may be caused by disease, injury or occupational influences the sigmoid carpus appears to be a constant anthropological finding in the majority of adult females. The causes noted as leading to a disappearance or lessening of the feminine type in women are rheumatism, obesity, senility and continued use of the needle in sewing, besides accidents of various sorts. On the other hand, piano players develop this form of hand to a marked degree, and a young man whose fingers could not be extended beyond a slight degree of palmar flexion (convex dorsum) was able after a year's exercise on the piano to double his fingers well back at any or all of the phalangeal joints, and presented at this time a well-developed type of the female form of hand.

Some men who in ordinary extension present the level form of dorsum can produce a concavity at will, thereby partially simulating the sigmoid carpus, while others cannot by any amount of exertion extend the fingers dorsally beyond a level. In those of either sex who do show the feminine type of hand, the latter will become more marked if extension is done fully and quickly, or if attention is called to the curves of the hand. It is interesting to note that men or muscular subjects, if told to extend the hand more forcibly, when the arm is already in extension, will almost invariably increase the extension at the elbow and not at the wrist or fingers on applying more force; while in women and nervous individuals the reverse is true, so that at the same command they will make an increase of flexion at the wrist and extension at the phalangeal joints rather than any change at the elbow, thereby accentuating the sigmoid carpus if the latter be present.

Racial differences appear to play some part in the presence of the type of hand under discussion, though the exact figures have not been gathered as to this point. In the colored race both sexes of all ages who have been incidentally noticed have presented almost uniformly a concave dorsum; and an unusual proportion of males as well as all females have exhibited the sigmoid carpus. It may be stated also that the same facts have been found to hold true in the case of both men and women of the so-called "neurotic temperament" and in Hebrews, perhaps in the latter on account of the frequency of this disposition in that race.

The above findings have been made with the idea of simply establishing a characteristic difference in the male and female hands when in a position of extension under normal conditions. It is believed that further study and observation may show the absence of the sigmoid type in the female and its presence in the male to be of some diagnostic value in conditions of disease. It would appear that males who live and work and think on a plane of continued high tension often exhibit the feminine form of hand. Reversals of type have been observed in some cases of disease, but not to an extent or under sufficient conditions of control to allow any definite finding to be presented at this time.

ON DIPLOCOCCI AND PNEUMOCOCCI; THEIR PLEOMORPHISM, VIRULENCE AND MODE OF CAUSING DISEASE. AN EXPERIMENTAL STUDY.

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IN examining stomach contents bacteriologically I frequently met with a microbe which greatly puzzled me. In a hanging drop and in smear preparations of the stomach contents of hypochlorhydria, no matter of what origin, a micro-organism resembling what is generally called the pneumococcus of Fraenkel was frequently noticed, but on making cultures from the same gastric contents this germ seemed to be absent.

Elsewhere [1] the writer of this has dealt with the bacteria of the stomach. There is so far nothing to rectify concerning what has been said there, but in addition to the bacilli described before I frequently saw in the gastric contents of hypochlorhydria a microbe whose identity I was then unable to establish and which, therefore, was not dwelt on. Some time ago, however, I came across a case of hypochlorhydria the gastric contents of which, in a hanging drop, as well as in smear preparations, showed only two kinds of micro-organisms, yeast cells and a diplococcus, and on making cultures, there were again only two kinds of micro-organisms, yeast cells and a short bacillus.

We shall first describe the cultural peculiarities of the microbe in question. On agar plates in first cultures there are formed in about thirty-

six hours, at a temperature of about 35° C., small, pin-point, whitish colonies. Under the microscope they are fine, transparent, round colonies, the center usually slightly lighter than the periphery and the border having somewhat of a crenate appearance. The colony looks under the microscope like a fine white piece of lace work. The colonies which grow along the yeast colonies resemble under the microscope a fine white border of lace work applied to a dark material. In agar stab there is a fine, delicate, threadlike growth along the stab, but no growth at the surface. The microbe in question also grows in nearly the same way on gelatine, which it does *not* liquefy. But as it must be kept at a comparatively low temperature the growth is slower and more sparing. In subsequent cultures the growth is faster and more abundant, covering in agar slant the whole surface of the agar and forming a thin, fine pellicle.

Its other peculiarities are: It does *not* coagulate milk and forms no indol; it is always nonmotile and takes the Gram stain well and is easily stained in general. Morphologically the microbe in question undergoes a great change. As was said before, in the gastric juice it is a diplococcus, but in the first cultures it assumes the form of a short bacillus. Some of them have their ends juxtaposed, but many appear single. Their ends are usually rounded. They are about 1.5-2 microns in length and half that in width. In subsequent cultures, especially in the fifth and sixth, they become much longer, attaining double the length.

Similar colonies and bacilli, as was said before, I noticed in many cases of hypochlorhydria. I was at first under the impression that I was dealing with a diplococcus which can become a bacillus, and which is entirely different from what is called the pneumococcus of Franekel.

Bacilli similar to those which were formed in the first cultures just described I noticed in great abundance in the sputum of patients affected with simple catarrhal conditions of the air passages, such as bronchitis and asthma. I was under the impression that these microbes might be the cause of catarrhal affections of the mucous membranes, and tried their effect on house mice. But pure cultures of the third generation had absolutely no effect on mice. I injected several times big doses of agar cultures of the third generation, both subcutaneously and intraperitoneally, into mice, but the animals would soon recover from the slight shock and would seem to be the better for it. I captured two young house mice, which were apparently of the same liter. One was experimented upon and the other kept as a control. The latter died in three days, but the former, *i.e.*, the animal which received the injections, was lively and thrived. Both were kept in the same jar.

A last intraperitoneal injection was given the animal and it was killed by chloroform twenty-four hours afterward, while it was apparently in good health. On dissection there was nothing abnormal. No foci of inflammation at the points of injection were found. The stomach was filled with a pulpy mass of digested semi-solid food. Smear preparations made from the blood and the various organs failed to show any microbes. Cultures made from the lungs on agar gave rise in forty-eight hours to microbes similar to those of the first cultures of hypochlorhydria described above. The stomach contents of the mouse, in smear preparations, showed diplococci and a Gram negative bacillus. In cultures from the stomach of the mouse in question two kinds of microbes were obtained; cocci which formed groups and looked much like staphylococci, and a Gram negative, slightly motile, bacillus which coagulated milk and had all the other characteristics of the *Bacillus coli communis*. Doubtless the staphylococci-like bodies were modifications of the diplococci found in the stomach of the mouse. The feces of the mouse were also collected and examined. In smear preparations there were also two kinds of microbes; one resembling the *Micrococcus lanceolatus* and a Gram negative bacillus. In cultures there were again two kinds of microbes, cocci and a Gram negative bacillus similar to those which were found in the stomach of the mouse.

To see whether the bacilli in question were present in other non-injected mice I dissected house mice which were caught in a spring trap and suddenly killed by having their necks broken in the trap. Similar microbes were found in the stomach contents and feces of these mice.[1] On examining several specimens of feces of healthy mice I found microbes resembling the *Micrococcus lanceolatus*, and in cultures found cocci. There was always also a Gram negative bacillus present in the feces, which in some specimens appeared to be the *Bacillus coli*, and in others the *Bacillus lactis aerogenes*. The cocci obtained in agar cultures from the stomach and feces of mice formed bigger colonies than those from the stomach of human beings. To determine the virulence of these microbes I injected young agar cultures of the first generation obtained from the feces of a healthy mouse into another mouse. These cultures as usual contained cocci which resembled staphylococci and the Gram negative bacillus mentioned before. But very strong doses of these mixed young agar cultures, injected both subcutaneously and intraperitoneally, had absolutely no effect on a mouse.

Surmising that the diplococci which were present in the stomach contents of human beings in hypochlorhydria found their way there from the mouth or the saliva, I turned my attention to the bacteriological study of the sputum of healthy people, in order to determine the nature of the microbe in question. In examining my

[1] The stomach contents of mice which were killed suddenly or died of disease did not react at all on Congo paper, even immediately after the death of the animals, thus showing the absence of free hydrochloric acid.

own sputum on many occasions I always found diplococci in it. Sometimes they formed chains which looked like streptococci, but on close inspection they could be seen to consist of pairs of cocci joined together and appearing like streptococci. There were also a few lanceolate diplococci resembling what is called pneumococci. In addition, there was found a Gram negative bacillus, which at first I mistook for the *Proteus vulgaris*, but on making cultures I found it did not liquefy gelatine and had the characteristics of the so-called Friedländer group of bacilli, among which is the *Bacillus coli*. On making cultures from the sputum on agar in Petri dishes, colonies precisely like those which have been described before, in connection with the gastric juice, were formed in about the same length of time, *i.e.*, the colonies under the microscope had the appearance of fine pieces of lace work. The microbes of these colonies were Gram positive diplococci. In successive cultures in plain agar stab the diplococci gradually assumed the form of streptococci, and in the third generations the chains were quite long. The diplococci in question were the only Gram positive microbes found in cultures. In agar stab of the sputum there were usually two kinds of microbes growing along the stab and also at the top of the stab at the upper surface of the agar. One microbe consisted of Gram positive diplococci and the other of a Gram negative bacillus of the Friedländer group. In gelatine stab usually the same thing occurs. Once, however, nothing but diplococci grew in a fine, delicate thread along the stab; at another time yeast cells appeared and somewhat elongated cocci resembling fine bacilli, which were Gram positive.

I must say here, in order not to refer to the matter again, that by injecting the latter cultures into mice the same effect and the same microbes were subsequently obtained as from those cultures which had the form of typical diplococci, so it can be safely said that they differed slightly only in form, but were the same microbes as the diplococci. Thus, while in smear preparations of my sputum there appeared a few lanceolate Gram positive microbes, in culture there were only Gram positive diplococci. Again, while the colonies of the first generation of the gastric juice and of my sputum were similar, the morphology of the microbes differed somewhat. In successive generations they differed still further; those from the gastric juice assuming the form of bacilli, and those from the sputum that of streptococci.

I next injected into a house mouse about 1 c.c. of my sputum intraperitoneally. The same sputum when examined previously contained the micro-organisms referred to before. The mouse died in forty-eight hours. Death usually ensues in the following way: In about twelve hours the animal becomes apathetic and takes little nourishment. The depression gradually increases until the animal sits with the head down and the eyes half closed, one eye, usually the left, closing first. Death ensues with the animal usually in a sitting posture. The death of other mice followed in about the same way.

On dissecting the animal immediately after death, the following was found: Slight infiltration of a gelatinous, white substance at the point of injection on the surface of the peritoneum. Liver greatly enlarged, congested, dark and very friable. Spleen also dark, congested and enlarged. Kidneys enlarged. Stomach entirely empty. Intestines also empty and greatly congested at some points. Stomach and intestines very friable and can be drawn out like mucus. Heart rather pale. Lungs shriveled up and occupying a small space in the chest cavity. In smear preparations from the blood of the heart, Gram positive microbes are found in abundance. The microbes vary from elongated, oval cocci to bacilli, the latter about three microns in length. Some of them assume the form of lanceolate diplococci. Capsules can be seen in all of these by appropriate methods of staining. Similar microbes are found in all the other organs, especially in the liver.

In making agar and gelatine cultures from the blood of the heart, by cutting it across with aseptic scissors and inserting the platinum wire needle into the cavity, colonies appear in about thirty-six hours at a temperature of 35° C. The bacteria of these colonies are in the first generation diplococci, like those obtained from the sputum. In the second generation they assume the form of streptococci. A third generation on blood serum yielded small, oval bacilli, like those of the first generation of the gastric juice described above.

Cultures of the second and third generations of microbes obtained from the dead mouse just described were again injected into other mice. The agar culture of the second generation was ten days old and the blood serum culture of the third generation was three days old. By scratching the root of the tail of a white mouse and rubbing in some of the above said cultures the animal died in five days. By deep subcutaneous or intraperitoneal injections the animal dies in about thirty-six hours; the death following in the same manner as detailed above. White mice were this time used because I was at this time unable to obtain the house mice. But the former and latter are practically alike.[1] I preferred to experiment with house mice and rats for reasons which will presently appear.

On dissecting the white mice the pathological changes were nearly the same as those in the house mice, into which sputum was injected, except that in the former there was no local inflammation at all at the point where the injection was made, and the lungs were slightly congested. There was also in one a sanguinous

1 It appeared, however, from subsequent experiments that the house mice and rats, especially young ones, are more susceptible to the microbes in question than are the white ones.

effusion under the skin in the left side of the chest. The microbes in the blood and in the other tissues were more abundant and many of them assumed the form of bacilli, some attaining the length of about five microns. In short, there were oval cocci, lanceolate diplococci and diplobacilli and some single bacilli of the length just mentioned. All were Gram positive and had distinct capsules.

Agar cultures made of the blood of the heart cavity of the mice just spoken of yielded an abundant growth of small round colonies with a slight depression in the center. The microbes of this culture consisted again only of cocci, but had rather the appearance of staphylococci than of diplococci, which latter predominated in the cultures from the first mouse. On making a second blood serum culture from the agar culture, the diplococci form again predominated, though there were yet groups of cocci giving the appearance of staphylococci.

I next tried the effect of *cultures* obtained from my own sputum. Once I obtained in gelatine cultures from my own sputum only diplococci and yeast. On injecting such a mixed culture which was five days old intraperitoneally into a very small house mouse the animal died at the end of three days in the way described before. On dissecting the mouse fifteen hours after it died, the changes in the stomach and intestines were similar to those found in the other mice previously mentioned, but the changes in the liver and other organs were less marked. The microbes in the blood and other tissues were not numerous, and in smear preparations only Gram positive bacteria were present; all of them encapsulated and some of them being bacilli of some length. In fact their appearance was nearly the same as that in the previous mice. On making cultures from the blood, some of them contained only Gram positive diplococci, but some cultures contained in addition a Gram negative microbe of the Friedländer group. This was evidently a contamination, owing to the fact that the dissection was delayed for so many hours.

Another gelatine culture from my own sputum made subsequently happened to contain nothing else than Gram positive diplococci. On injecting this culture, which was three days old, into another big mouse subcutaneously the animal died in thirty-six hours, in the usual way. This animal was dissected at the end of twenty-four hours. The pathological changes in the various organs were similar to those in the other mouse just mentioned, but the bacteria in the blood and various organs were more abundant, and the intestines, which, as a rule, are always empty, contained in smear preparation numerous Gram positive encapsulated bacteria, the same in morphology as in the blood and other tissues. Cultures from this mouse also yielded Gram positive diplococci, but in addition some also contained a Gram negative slightly motile bacillus of the coli group. It might be said here, *en passant*, that it is best to dissect the mouse immediately after it dies, when, with proper aseptic precautions, the bacilli of the Friedländer group will not contaminate the cultures.

Before proceeding further it must be said here that I have never had any serious illness of the lungs; never had anything which might be suspected as pneumonia, and at the time when the experiments with my sputum were carried out, as well as a long time previous to it and afterward, I was not even troubled with what is considered an ordinary cold, nor did I come in contact with pneumonic patients.

I next tried the sputum of a member a my family, a woman of twenty-nine years, who has been right along in perfect health. In smear preparations the Gram positive bacteria in this sputum, which we shall designate for convenience sake as sputum B, were more numerous than in my sputum. The lanceolate diplococci were abundant, especially on forcible expectoration, and in the morning soon after getting up more so than in the evening. On making cultures from sputum B, I found in them colonies of Gram positive diplococci which in every way were similar to those of my sputum. In addition there were colonies of Gram negative staphylococci. Such staphylococci as the latter, by the way, I also obtained from fresh butcher's meat which was afterward consumed in the household without any ill effects. They are evidently harmless saprophytes.

On injecting very big doses of such a mixed agar culture six days old into a house rat, both subcutaneously and intraperitoneally, no effect whatsoever was produced. Later I obtained more house rats, and an agar culture of my own sputum happened to be similar to that from sputum B. By injecting a big dose of this culture, when it was three days old, intraperitoneally into a house rat, and when it was five days old, into a white mouse, the animals were not thereby affected. Subsequently I injected 2 c.c. of my sputum into a young house rat and it died in two days. I next injected into the same animal intraperitoneally about 2 c.c. of fresh sputum B. The animal seemed to be a little depressed for about thirty-six hours, but in three days it seemed to be well again. On lifting it up and accidentally pressing its abdomen, a few c.c. of a greenish fluid spurted out from the point where the sputum was previously injected into the abdomen. Smear preparations from this fluid showed oval cocci and lanceolate diplococci, the same bacteria in fact as those found in the dead mice described before.

The animal soon completely recovered and another injection of fresh sputum B was given it, but this time it had no effect. The animal was kept under observation for a month and received six injections of sputum B, plus one injection of cultures from the same sputum.

To be brief, I will say that I found the injec-

tion sometimes had an effect and the animal would get into a depressed state, as said before, with regard to the mice. But in forty-eight hours the animal would recover again and be apparently in good health. Of the seven injections three had no effect, *i.e.*, including the first from the cultures and two others from the sputum, four had an effect, and the last caused the death of the animal in fifty hours. On two occasions when the injection had an effect the animal would give all the signs of suffering from excessive dyspnea. It would keep its mouth open; the breathing would be greatly exaggerated and sometimes so loud as to be heard at a considerable distance. But the state of depression where the animal would sit with its head down and toppling over from side to side also occurred. The state of noisy breathing would sometimes be followed by a state of semicoma.

The last injection was given subcutaneously in the back, and an abscess was soon formed at the point of injection. The animal, as said before, died in fifty hours. On dissection there was only slight infiltration of a gelatinous substance on the outer surface of the peritoneum. The bacilli in the blood and tissues were the same as in the mice, but not numerous in smear preparations. In culture from the blood of the heart, Gram positive cocci were obtained which had more the appearance of staphylococci. The abscess contained numerous disintegrated Gram positive microbes. I say disintegrated, judging from their appearance. No cultures were made from the abscess, as I did not think it worth while. I was greatly puzzled to explain why an injection of sputum B into the same animal sometimes had no effect and sometimes had. But on examining the sputum microscopically before injecting it I noticed that when there were, in addition to the Gram positive microbes, also Gram negative bacilli, the sputum had an effect. Also when the sputum was not fresh, but kept for about twenty-four hours before being injected, it had a better effect. The expectoration obtained on deep coughing also seemed to be more effective. The Gram negative microbes of the Friedländer group, of course, evidently only helped the others, but were not in themselves the active agents for, on the death of the rat, as said before, only Gram positive microbes were found in smear preparations, and in cultures only Gram positive cocci.

Before proceeding further, we shall sum up what has been said before. Firstly, concerning the pleiomorphism of the microbes in question: (*a*) Microbes, which in the gastric juice had the forms of diplococci, assumed in successive cultures that of bacilli. (*b*) Sputum which in smear preparations showed Gram positive cocci and lanceolate diplococci, and also single bacilli, yielded in cultures only Gram positive diplococci. (*c*) Successive cultures of the same assumed the form of streptococci; (*d*) When young cultures of diplococci, that is, cultures of the first generation, are injected into mice and the animals die, the blood and organs contain bacilli-like bodies, but hardly any round cocci. (*e*) When cultures are made from the latter they yield again cocci resembling very much staphylococci. (*f*) The colonies of the latter vary, being sometimes very small pin-point like, and sometimes bigger and abundant. Secondly, concerning the virulence: (*g*) Cultures of the third generation from the gastric juice had no effect when injected into a mouse. (*h*) Young cultures of the first generation obtained from a man who has never had any lung disease, when injected into house mice, cause their death in from thirty-six to sixty hours, depending upon the age of the cultures. Six-day, also three-day old cultures of the first generation from a healthy person have no effect on a rat. (*i*) Sputum from a healthy man injected into a house mouse kills it in forty-eight hours and in the blood and organs are found Gram positive bacteria. Cultures made from the blood of the same yield diplococci in the first and streptococci-like microbes in the second generation. When ten-day old agar cultures of the latter are injected into a mouse, or a white rat, the animal dies soon, and in the tissues are found again Gram positive bacteria having capsules. Cultures from the blood of some again yield Gram positive cocci. (*j*) Sputum from a healthy person injected into a house rat caused peritonitis. A few times it had no effect at all and a few times it had only a passing effect. The last injection caused the death of the animal in fifty hours with an abscess formation, and some Gram positive bacilli were found in the blood and organs. (*k*) Cultures obtained from the blood of the animal yielded big colonies of Gram positive cocci.

What are the microbes in question? At first I thought I was dealing with some microbe not hitherto known, but from its form and staining properties in tissues, there can be no doubt that it is the so-called pneumococcus of Fraenkel, which assumes different forms in the various media. Let us briefly consider the literature on this subject.

Pasteur [2] first described a microbe which he found in the blood of a rabbit into which he had injected the sputum of a child dead from rabies. Sternberg [3] afterward, without knowing the work of Pasteur, called attention to the fact by injecting sputum of a healthy person into a mouse, it died and yielded bacilli which he at first thought were those of Friedländer, but subsequently he concluded they were the Fraenkel bacilli. Sternberg says, however, that he found four people in Philadelphia and a few in Boston whose sputum had no effect, and he thinks that the sputum of people who come from hot climates is not virulent. This explanation will be dealt with later.

As to the frequency of the so-called pneumo-

cocci in the sputum: Bein [4] thinks they are found in about 30 per cent. of healthy people. Netter [5] thinks they are found in about 75 per cent. of healthy people. Netter [6] also found that his own sputum was sometimes virulent and sometimes not, and he thinks that when he attended pneumonia patients it was more often virulent. He also ascribes the change in virulence to meteorological changes. According to the same investigator the pneumococci are oval in form and do not have the shape of cocci. Talamon thinks they have lanceolate shapes. Netter admits, however, that they may assume the form of streptococci, and he tries to show the difference between these and real streptococci. Indeed, there has been quite a disagreement among investigators as to the form of pneumococci; some classifying them rather among bacilli than among cocci. That is probably the reason why Friedländer and Fraenkel's bacilli had been at first confounded. Fraenkel [7] also finds that the sputum of the same healthy individual may vary in its virulence when injected into susceptible animals, and he argues therefrom that the pneumococci are not always found in the sputum of healthy people. According to the same author the virulence of the sputum of a healthy person, in comparison to that of a pneumonic patient, is in the ratio of one to three. None of the authors above mentioned seem to have experimented with cultures of sputum from healthy people, nor do they seem to have examined some of the sputum microscopically before they injected it.

Cultures obtained from the sputum of pneumonia patients have not given uniform results at the hands of different investigators. Thus while Fraenkel finds that such cultures when young, as a rule, cause the death of susceptible animals by pneumococci infection, Aufrecht [8] found them sometimes without any effect on rabbits.

From the authors quoted above it would seem that the pneumococci in the sputum of pneumonia patients are more virulent than those in the sputum of healthy people. Furthermore, it can be seen that authors differ with regard to the morphology of the microbe in question.

From my own researches described before it can be plainly seen that the microbe in question is extremely polymorphous, and it can assume any form, or all the forms, which each author claims as peculiar to it. It will also be seen that when obtained from man it is virulent only in young cultures of the first generation, but not in later generations, consequently it is most of the time in the cycle of its existence a harmless microbe, and when it is pathogenic it may cause quite different affections when derived from the same source. For the reasons just stated it is evidently quite wrong to call it a pneumococcus. If it causes pneumonia only under very exceptional circumstances, why call it then by such a name? The name of *Micrococcus lanceolatus* is wrong because in cultures it seldom has a lanceolate form and, besides, it assumes other forms. *Micrococcus Pasteuri* is not advisable because Pasteur has hardly given any description of it. Fraenkel, who deserves great credit for his work in this connection, as said before, thinks this microbe has an oval form. This is so only occasionally. Fraenkel evidently saw only one phase in the growth of the micro-organism in question; but the fact is, this microbe assumes various forms, and referring to it as the pneumococcus of Fraenkel leads into error. In fact, many speak of the pneumococcus of Fraenkel without having a distinct idea of the microbe they are speaking about. I think the most appropriate name for it is diplolanceo-bacilli-cocci. This is a cumbrous name, it is true, but it characterizes the microbe in all its phases, as it is apt to assume any of these forms and in some media, such as sputum, for instance, all these forms may be met with. For the sake of brevity it can be referred to as d.l.b.c., and thus I shall refer to it in the future.

The difference of opinion among authors as to the frequency of this microbe in the sputum of healthy people is simply due to the fact that it has not been recognized. I can say most assuredly that the d.l.b.c. in one form or another is found more or less in the expectoration of every healthy human being. This is, of course, a broad statement to make, but having examined the sputa of numerous people I have never seen it absent, and in my own sputum I have always found it. In some affections of the lungs I have seen it greatly increased, especially in catarrhal and asthmatic conditions; in others I have sometimes seen it diminished or absent, namely, in advanced conditions of pulmonary tuberculosis, when the tubercle bacilli in the sputum are numerous.[1] Is there an antagonism between the d.l.b.c. and the tubercle bacilli? This is a question which cannot be answered offhand, and requires another series of experiments. It is best, therefore, not to discuss it here. It is a well-known law in biology that many species cannot thrive together in the same medium; some are necessarily stifled by the excessive growth of others. In examining sputum for tubercle bacilli I usually find that when the counter-stained bacilli are very numerous, especially the lanceolate diplococci, there is usually absence of tubercle bacilli, or if they are found they are few in number. The *Tetragonus*, on the other hand, seems not to be antagonistic to the tubercle bacilli. In my opinion the d.l.b.c., which are our habitual hosts, perform rather a useful function, something like the leucocytes. It would not be reasonable to suppose that, even

1 The author is fully aware of the so-called mixed infection theory of pulmonary tuberculosis, but it has no real foundation. A few days ago the author received the sputum of an advanced consumptive, which was loaded with tubercle bacilli, but showed no d.l.b.c. An injection of it into a house rat and into a white mouse has not so far caused their death. The same absence of d.l.b.c. was noted in other sputa of consumptives. A detailed study of this subject will be made elsewhere.

admitting Netter's estimate, at least about 75 per cent. of us carry within us germs which at any moment may become virulent enough to cause pneumonia. Netter, as mentioned before, thinks that the virulence of these microbes may depend on meteorological changes, but it is hard to see how meteorological changes can effect a microbe. There is no analogy of it anywhere in bacteriology. Sternberg's statement that the sputum of those who come from warm climates is not virulent is hard to explain. Furthermore, the statement usually made that when one comes in contact with pneumonia patients the sputum is apt to be more virulent than otherwise, is not borne out by my own experiments, for, as said before, neither during the time of my experiments nor previous to it did I come in contact with pneumonia patients, nor did I ever have any affection which may resemble this distinct disease.

The fact is that by injecting sputum one never knows the quantity of microbes one injects, and the quantity in this case makes a great difference. It is also a great difference whether the viscid expectoration is injected or the fluid saliva. Deep subcutaneous injection in the back also seem to have a better effect than intraperitoneal injections. The varying effect of sputum B on the rat heretofore described can be explained in such a way, as the sputum was obtained at intervals of a few days, and the person from whom it was obtained was right along in perfect health, and the meteorological changes were apparently not great. The above explanation is the only reasonable one, I think. This probably also holds good for the cases of the authors who found that the sputum varied in its virulence when injected into susceptible animals. The best way is to experiment with cultures, and these, as stated before, have given me uniform results.

If we compare my experiments with healthy sputum with those of Fraenkel with the sputum of pneumonic patients, it seems that cultures from the latter are, on the whole, not more virulent than those from the former, for Fraenkel found that five days' old cultures from pneumonia patients lost their virulence. If we also take into consideration the above detailed experiments with the rat, it would seem that, on the whole, the sputum of healthy people, as well as that of pneumonia patients, cannot cause pneumonia—which must be considered as nothing else than a general infection—in animals very resistant to the so-called pneumococcus. The rat mentioned above died with an abscess formation, and as said before, there were only few microbes in the blood. According to Gamaleia [10] this is usually the case when the animals are more resistant to the microbes in question. This also seems to be the case when the microbes are less virulent.

As far as such factors as exposure to cold, etc., are concerned, which are said [11] to play an important part in predisposing the individual to the attacks by these germs, I must say, that when I injected into mice non-virulent cultures, such as those of the third generation of the sputum and exposed the animals to cold by leaving them in frosty weather for a reasonable time so as not to freeze them to death entirely, this had no effect on them. But when I injected virulent cultures the animals died even if they were taken good care of.

From the above it seems we are justified in concluding that neither the sputum or the cultures therefrom of healthy people, nor of those suffering from pneumonia, are virulent enough to cause pneumonia, that is, general infection, of man, who is considered among the most resisting animals to this microbe. In order to do so, the pneumococci, or as I call them, the d.l.b.c., must pass first through an animal most susceptible to them, like the house mouse, for instance, whereby the virulence of these germs is greatly enhanced. And hence mice, in my opinion, are the main factors, if not *the* factors, in causing pneumonia. According to Gamaleia [12] some epidemics of pneumonia in man are associated with epidemics among rats. But I wish to go a step further and say that mice, which are far more susceptible to this germ than rats, are usually the cause of it. They surely occasionally get inoculated with human sputum and either through their feces or after their death spread the virulent germs which may cause disease in the most resisting animals. This is a frequently overlooked factor.

Clinically, pneumonia has never been proven to be so contagious from man to man as diseases like diphtheria, scarlatina, etc. But we have cases where the disease evidently originated from air coming from cellars.[13] Doubtless the air was laden with germs from decomposing discharges from rodents. Hence the reason why dwellings with defective sanitary conditions breed the disease, because the inhabitants inhale the virulent germs from the decomposing discharges, or the decaying body of rodents. [After the above was written the author found the body of a dead young mouse on the floor of a room in a public place where many sick people pass. On dissecting the mouse the pathological changes in it were similar to those described before, and the blood showed in smear preparations numerous Gram positive d.l.b.c. No comment on this fact is necessary.]

But the sputum of healthy people, as well as the first cultures therefrom, may cause local inflammation in animals less susceptible to this germ. Hence abscesses, peritonitis, etc., in human beings when the d.l.b.c. are found, are probably caused by the less virulent germs derived from man. These germs will have no effect on man when the mucous membranes, or the other tissues, are intact, but where there is a break of surface they may cause local inflammation. Hence the fact that in brawls the one who hits

the other in the mouth usually gets an infected wound of the hand.

From what has been said above, it will be seen that the current method of diagnosing pneumonia bacteriologically by making smear preparations or cultures from the sputum or by injecting the same into a mouse is valueless. Admitting even Netter's estimate that it is found in 75 per cent. of healthy people, such a method is only misleading. The only reliable method is to obtain cultures from the blood of patients suspected to have this disease, as these microbes are not found in the blood of healthy people. Furthermore, the cultures must be virulent to mice.

From the above experiments it would seem that active immunization with these microbes is impossible. This is, indeed, in accord with clinical experience, as one may have several attacks of pneumonia. It must also be added that the pneumococcus produces in many animals simply general septicemia, but hardly any lung trouble.

In conclusion I will say, that the microbe in question is frequently found in the stomach in hypochlorhydria, but it cannot be obtained in cultures from cases of hyperchlorhydria, because it cannot thrive in an acid medium.

321 East Thirteenth Street.

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REMARKS ON DIGITALIS TREATMENT.

BY FRITZ SCHWYZER, M.D.,
OF NEW YORK.

DIGITALIS is, without question, one of our most valuable drugs. In heart-cases it prolongs the state of compensation and preserves life as long as it is worth living by increasing the time of its usefulness, not merely lengthening the misery of its termination. During acute diseases its use prevents the heart dilating, and its action is directly life-saving in a great many cases, as for instance, in pneumonia. And all this in spite of the fact that digitalis is uncertain in its dosage and indication. The plants vary greatly in strength, according to the location of their growth and various other conditions beyond our control. The dried leaves weaken with age sometimes to one-fourth of their strength when first dried. Leaves recently dried show in September a much stronger effect than the same leaves would show in May of the following year. One could almost make a scale of dosage for each month were there a standard of strength from which to start. Thus we grope in the dark with our digitalis prescriptions, and in each case have to push the administration of the drug far beyond the desirable limit, if the patient does not exhibit the expected result. Many times we stop its use with these shadows of doubt in our minds: Did the patient really derive no benefit from our medication, or was the digitalis not good? In our hospital work we can prescribe with more confidence than in private practice if a yearly supply of fresh leaves is bought every autumn. In a few days the strength of the drug can be ascertained and by gradually increasing the dose toward spring, we have a fair idea of what we are doing.

Digitalis is used chiefly in three forms, viz., infusion, powder, and alcoholic extract or tincture. The alcoholic extracts are possibly less harmful for the stomach, but are generally considered unreliable in their effect. In New York about fifty to seventy-five per cent. of the prescriptions call for infusion, fifteen to twenty-five per cent. for alcoholic extract or tincture, and only a few for powdered leaves or pills. Prescriptions for digitaline, digitoxine, etc., are less frequent.

We are at a loss even as to the indications for using the powder or the infusion. Krehl thinks it a matter of personal inclination to prescribe either powder or infusion. He considers the powder stronger than the infusion, because the former contains all the principles, while in the infusion most of the digitoxine, which is insoluble in water, is left in the residue. He recommends powder when a rapid effect is desired, infusion where a mild result is looked for, powders of two grains to be taken three to four times a day, infusion of fifteen grains, in twenty-four or thirty-six hours. I always try to get along with small doses, one to two grains twice or three times a day have a sufficient effect, provided they are given in time, *i.e.*, as soon as the heart shows the slightest effect of the strain. In chronic heart-cases it is usually necessary to continue with very small doses as soon as the desired effect, the amelioration of the circulation has been reached. These small doses, one-half grain two or three times a day, given in pills after meals, have no ill effect on the stomach and can be continued for months. The infusion is much more nauseating than the pills, in many instances the improvement of the circulation caused by the infusion is more than upset by its prejudicial influence on the digestive organs.

For many years there has been a strong desire among physicians to have the active principle of digitalis isolated from those responsible for the poisonous effect of the drug. A number of digitalis alkaloids, etc., have been isolated. Schmiedeberg found four main principles: digitonine, or soluble digitaline, insoluble digitaline, digitaleine and digitoxine. His crystallized digitoxine is soluble only in chloroform and alcohol; it irritates the stomach very much, and, subcutaneously, causes painful infiltration or local necrosis. The glycoside digitaline crystallisée Nativelle

was recommended by Potain and Huchard. The latter uses it whenever he prescribes a digitalis preparation. My experience with it is limited, but many authors believe that Digitaline Nativelle is not the chief principle of digitalis.

We must have the active principle of digitalis as *one* chemical body which must be constant in composition and effect. It must contain all the valuable properties of the fresh leaves. We need this pure principle as a standard, we must be able to note our experiences from a standard measure in our histories, even if, afterward, we can treat our cases with our empirical doses of the powder. We should be able to buy digitalis leaves of a known strength, after samples of the powder have been analyzed for a percentage of pure principle. The pure isolated principle should be "injectable" and non-irritating. All of these requirements seem to be fulfilled in a new product, the soluble digitoxine, published by Dr. M. Cloetta, Professor of Pharmacology at the University of Zürich. A number of authors like Naunyn and Kottmann (*Münchener medicinische Wochenschrift*, No. 31, page 1413, 1904), Senator and Bibergiel (*Berliner klinische Wochenschrift*, No. 51, 1904), and Klemperer (*Therapie der Gegenwart*, 1904) make favorable reports of their experience with this digitoxine. Dr. Cloetta sent me a supply large enough for an extensive test and my results were good. I tried it under almost any condition in which digitalis is indicated; in all sorts of muscular insufficiencies of the heart, in chronic valvular troubles, in arteriosclerotic heart disturbances and in nephritis, also in acute diseases like pneumonia, typhoid fever, etc. I got the desired digitalis effect several times by injecting digitoxine into the muscles of patients who had already been given powdered digitalis, or fluid extracts per os, without any other result than that of nausea.

I found Cloetta's digitoxine superior to the digitaline and other digitoxines which are in the market. It can be used wherever digitalis is indicated. Per os it acts much more quickly than the powder, hypodermically (deep into the muscles) in a few hours, intravenously at once. It is not cumulative and its effect is not as lasting as that obtained from the powder. But the effect, once reached, can be kept by continued small doses. Its chief advantage is that it can be given hypodermically without much pain and without danger of infection, and that, in emergency, it can be injected into the veins with almost instant effect. The single dose of Cloetta's digitoxine is one-third milligram, corresponsing to 0.1 digitalis. This dose can be given three times a day or oftener per os or as an injection. In emergency, for instance, in acute dilatation of the heart, I have given two-thirds milligram by injection three times a day for several days in succession until the danger was passed. Of late I start the digitalis treatment of new cases with digitoxine injections, using them as a measure, and when I get the desired result I keep it up with small doses of the powdered leaves. Thus the treatment requires much less time, for instance, a few days for re-establishing the compensation, where otherwise a week would be necessary.

My experiments with Cloetta's and other digitoxines and with digitaline have given me the impression that there is still a field in which digitalis is not sufficiently employed and where it would be beneficial. I mean its use as a safeguard in chloroform and other anesthesia. Prevention is always much easier than cure. Why not give some form of digitalis before narcosis? In most cases it certainly would do no harm if the patient were given two grains of the powdered leaves three times in the day before the operation. Or a few hours before the narcosis one could administer two-thirds milligram digitoxine hypodermically, or at the beginning of the narcosis, intravenously. I tried this with several of my heart patients, where an operation was necessary, with very gratifying results. It is a mistake to wait with heart stimulation until the heart begins to fail—in narcosis as well as in pneumonia—and all the heart stimulants put together do not equal this one drug, digitalis, which in many instances would act if given in time.

54 East Fifty-eighth Street.

PARTIAL TURBINECTOMY FOLLOWED BY ACUTE OTITIS, MASTOIDITIS, SEPSIS, PARACENTESIS, MASTOIDECTOMY, LIGATION AND EXCISION OF INTERNAL JUGULAR VEIN; RECOVERY.[1]

BY CHAS. H. KNIGHT, M.D.,
AND
JAMES F. McKERNON, M.D.,
OF NEW YORK.

IN our routine work we are apt to lose sight of the risks attending what we call minor operations, until brought to realize them by a rude shock like that experienced in the following case: It is quite possible that similar cases, more or less serious, are not infrequent, since we seldom care to exploit our misadventures, and only our more brilliant achievements meet the public eye. In this connection may be recalled an interesting paper presented to this Association in 1904, by F. R. Packard, entitled, "A Study of the Fatal Results of Operations upon the Nose and Throat." We may be surprised at the small number of fatal accidents this author has collected, yet we are quite ready to accept one of his conclusions to the effect that "meningitis as a complication of intranasal operations should not be lightly regarded."

The narration of this history may be of advantage if it enforces a lesson of caution and conservatism, although we are not prepared to admit the absence of these qualities in this particular instance. The details of the ear complication are given by Dr. McKernon, who ultimately

[1] Read at a meeting of the American Laryngological Association, Atlantic City, June 1, 1905.

took charge, and brought the case to a successful termination.

It is difficult to trace the precise source of infection. The usual precautions as regards cleanliness and asepsis were observed. In scope and duration the operation of turbinectomy is not to be compared with others of almost daily experience. It did not seem that the patient suffered an excessive degree of surgical shock, and, so far as can be discovered, she was not subjected to any special exposure. We leave the solution of the problem to others, merely suggesting the possibility that certain pathogenic bacteria of unusual virulence find their opportunity in an organism of low resisting power. Under ordinary circumstances we successfully combat their encroachments; in conditions of depressed vitality they gain ready access, and pursue their destructive invasion with fearful and ofttimes fatal consequences.

The patient was a married woman, about twenty-five years of age, of rather nervous temperament but in excellent health, and, as afterward appeared, in the third month of pregnancy. She had never had any marked ear disturbance, except occasional tinnitus and slight impairment of hearing. Considerable nasal stenosis, excessive postnasal secretion, tendency to take cold, and above all, the existence of several cases of catarhal deafness in her family, led her to seek treatment for her nasal condition. She was found to have a septal ridge opposite the inferior turbinate, running obliquely upward and backward and partially occluding the right inferior meatus. The middle meatus on the same side was blocked by a cystic expansion of the middle turbinate. Owing to the difficulty of engaging the saw in the septal overgrowth, it was decided to attack first the turbinate. Accordingly the anterior end of the latter was removed with the cold wire snare and nasal cutting forceps. It was necessary to make liberal use of cocaine (20 per cent.) and adrenalin chloride (1-1,000) in order to get satisfactory anesthesia, as the parts were very hyperesthetic and resistant. But little blood was lost, the patient was remarkably brave, and was able to go home in the course of an hour in fairly good condition. No intranasal plug was used; the nose was merely sprayed with mentholized albolene and a light pledget of sterilized cotton was placed in the anterior naris. The following day the systemic depression was extreme, and there was some febrile reaction on the second day. On the third day there was slight improvement in these particulars, but on the morning of the fourth day she was awakened by sharp pain in the right ear, which had troubled her somewhat the previous evening. In the meantime there had been more or less pain in the nostril but no bleeding, and there had been no nasal treatment except a few instillations of mentholized oil. In spite of the usual remedies the pain in the ear persisted, and a few hours later the drum ruptured. Only a few drops of thin fluid escaped. Relief was partial and temporary. The same evening Dr. McKernon was called upon to incise the drum, as the discharge had ceased, the pain had returned, and there was some rise of temperature. The next day decided tenderness developed over the mastoid, which increased so rapidly that further delay was deemed unsafe, and a very thorough mastoidectomy was done within forty-eight hours after the tympanum had been freely incised.

At the time of Dr. McKernon's first examination, the right auditory canal was found partially filled with blood-stained serous discharge. The drum membrane was bulging over the whole posterior quadrant, and looked red and angry. There was a small perforation in front of the umbo through which the discharge had passed. The mastoid process was tender upon pressure. Gas was administered, a free incision was made in the posterior quadrant, and a smear was taken, which, upon examination, showed that infection was due to the streptococcus. Dry heat in the form of a hot-water bag was applied to the ear and mastoid, and warm bichloride irrigations (1-4,000) were used every two hours.

About forty-eight hours later the patient was found suffering acute pain in the ear. The bloody discharge was still present, and the temperature was 101° F. The systemic prostration was most profound, and the mastoid was exquisitely tender. At this time the operation of opening the mastoid was proposed and complete mastoidectomy was done. The cortex was very dark, and on exposing the mastoid cavity, an extensive empyema was found. Every cell had been invaded, including those in the zygomatic roots, and the medullary spaces posterior to the sigmoid groove. There was no exposure of the dura, but the whole inner table was of much darker color than is usually found, and especially the bone covering the sigmoid groove was almost black.

The patient bore the operation well, and, save for a rise of temperature eight hours afterward to 104° F., the eight days following were uneventful, the temperature never going higher than 101° F., and most of the time remaining below 100° F.

The flaps, however, did not heal kindly, and at the first dressing on the third day after operation, the stitches were removed and the wound left open. It was dressed again the following day and the soft parts were found to be bathed in pus, but there was not a drop of secretion from the bone cavity. The sigmoid groove was very dark in color, and there was not a vestige of granulation tissue present. The tongue was dry and heavily coated, and the patient suffered from extreme depression.

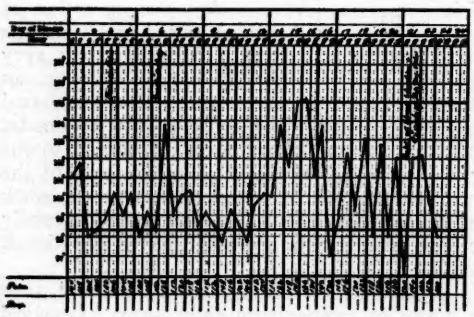
On the tenth day following the mastoidectomy, there was a sudden rise of temperature to 103.8° F. She complained of headache, and referred most of her pain to the vertex. During

the night the temperature dropped to 101.8° F., to rise on the following day to 105° F.

A diagnosis of involvement of the sinus was made, but owing to the extreme weakness of the patient, who had to be stimulated constantly, it was decided to wait for a time before operating. Clinical experience has taught us that those who are operated upon while the temperature is high, and the system markedly weakened, do badly, and a certain percentage of them never rally from the shock of the operation, while those who undergo the operation when the system has been supported and the temperature is lower, bear the shock much better, since the vital forces more readily respond when not encumbered by additional handicaps of high temperature and pronounced weakness.

On the twelfth day following the operation, a consultation was held with an eminent general surgeon, who said he thought the case was one of general pyemia, and that he did not believe any involvement of the sinus existed.

For the next five days all our efforts were directed toward keeping up the patient's strength. She was fed every two hours and given large quantities of water and stimulants, the temperature during this time ranging all the way from 104° F. to 97° F., as may be seen by the temperature chart, the characteristic curve of which is clearly indicative of pus.



On the sixth day following, making eighteen days from the time of the mastoid operation, the patient being stronger, and the temperature lower, 102° F., it was decided to operate. Chloroform was administered, and the sinus exposed from just above the bulb, almost back to the torcular. The bone covering it was very dark, nearly black in color. From the knee of the sinus backward, the dura was lusterless, and over a greater portion of its area, white or yellowish. It was opened freely and a clot removed from the knee, which extended backward toward the torcular for about two inches. Free hemorrhage followed, which was easily controlled by packing gauze into the lumen of the vessel. In the lower part of the vein was a disintegrated clot with pus. Owing to the presence of the latter condition, it was decided to expose, ligate and resect the internal jugular vein.

This was done, the lower point of ligation being below the clavicle, the upper point at the exit of the vein from the skull. The facial vein was also thrombosed for about an inch where it empties into the internal jugular, as were also both of the thyroid veins, which were ligated well beyond the thrombotic points and resected. There were a number of large glands along the course of the vein, which were removed. After resection of the vein, the lower end of the sinus was freed from a quantity of broken-down material. The wound in the neck was closed by a continuous suture, a drain being inserted at the lower angle. The patient bore the operation very well, the only stimulation being a hot saline enema during the latter part of the operation, and this was repeated half an hour after she was placed in bed.

The subsequent history was uneventful, there being only one rise of temperature on the second day, which was caused by a focus of pus in the neck, on account of which two of the stitches were removed. Healing was rapid, and the resultant scar smaller than might have been expected from the suppuration that at one time threatened the soft tissues in this region.

The findings of the pathologist in the specimens removed were that the clot in the vein, the walls of the vein, and the glands, all contained large numbers of streptococci. The fact that the walls of the vein are so impregnated in these cases, teaches us how important it is that the vein should be removed in its entirety, from its exit at the skull to the clavicle, or even lower, if necessary. For even though the vein be opened, and the clot removed, the wall of the vein and the sheath, containing, as they do, the micro-organisms of infection, if left intact, only serve to disseminate the poison still further through the system.

It is interesting to note that in this case there were no chills, nausea or vomiting throughout the entire course of the disease. Only twice did the patient complain of slight chilly sensations, but these sensations when present in a case like this are valuable diagnostic signs.

We were particularly fortunate in that the patient improved in strength during the few days prior to the second operation, as it gave us, so to speak, an elective time for doing the operation. If, however, such improvement had been absent, and the patient had not shown daily gain in strength, the operation would have been done early, as it is much wiser to operate upon these cases as soon as the diagnosis is made, provided the general condition permits.

Boston Consumption Show.—A tuberculosis exhibit for the enlightenment of the public will be opened in Faneuil Hall on December 28. It will give the people an opportunity to learn the methods of treating and preventing tuberculosis. The city of New York will contribute largely; in fact, it will be a double exhibition, consisting of material collected in Massachusetts and of the material collected in New York for a similar exhibit in that city.

MEDICAL PROGRESS.

MEDICINE.

Gastric and Duodenal Ulcer.—W. J. MAYO (*Journal A. M. A.*, October 21) considers chronic gastric ulcer a much more common condition than clinicians would lead us to believe. The small proportion found in American hospital statistics, he thinks, is an error due to less frequent autopsies. While statistics would seem to show that duodenal ulcer is rare, he thinks it occurs in a fair proportion of cases. He reviews statistics and gives the results of his own and of C. H. Mayo's experience in the surgery of these conditions. In 231 cases of gastric and duodenal ulcers seen since January 1, 1903, the duodenum was involved in 74 cases, 55 males and 19 females. Of the total 231 cases, 151 were what he calls surgical ulcers, involving all the coats, and this includes 68 of the 74 duodenal cases. What he calls medical of non-indurated ulcers are those that give undoubted clinical symptoms, but involve only the mucous coat, and may be difficult to detect even on operation. They include two varieties—the mucous erosion of Dieulafoy and the typical round, peptic and fissure ulcer. The Mayos find the fissure ulcer rather frequent. Of the total 231 cases, 80 were medical ulcers, 56 females and 24 males. Mayo notices the enlarged lymphatics in the neighborhood of the ulcer as a probable valuable diagnostic sign. He remarks also on the need of further study of these medical cases, especially in a diagnostic and operative point of view. There is danger of too much operation, especially with neurasthenic patients. Each individual case should be examined with a presumption against operation unless the indications are very clear. Among the problems of the condition is noted pyloric spasm, which, he says, is not due to the pyloric sphincter alone. There is also undoubtedly a contraction of the pyloric muscle without demonstrable lesion, and another not rare condition is "valve formation," in which a high lying pylorus is held taut by a short gastrocolic omentum. At present he does not advise operation in acute ulcer unless certain complications, such as hemorrhage and serious obstructions, compel its early performance. He does not advise it in chronic ulcer until careful and prolonged medical treatment has failed, and he strongly advises against it in neurotic patients with prolapsed stomach. It is advised in chronic cases with acute exacerbation and relapses affecting the patient's general health, in all cases of stagnation and retention of food from mechanical causes, and in cases of exhausting hemorrhages. The method of operation is described and discussed. Gastrojejunostomy has the largest field of usefulness, and next to it comes Finney's operation, which is specially suited to narrow strictures. Rodman's operation of complete excision of the ulcer-bearing pyloric end of the stomach with independent gastrojejunostomy will, he thinks, gain ground in the future, especially considering the possibility of cancer development.

Sanatoriums and the Eradication of Consumption.—Statistics overwhelmingly show, asserts R. C. MACFIE (*Lancet*, Sept. 30, 1905), that the sanatorium treatment of tuberculosis for the poor in England has produced no appreciable effect in decreasing the mortality of this disease. Though this fact be true, it is not the idea to abolish sanatoriums, but having acknowledged their limitation and subsidiary capacity to institute reforms of management and to utilize them in conjunction with other measures. Under the present system sanatoriums save only 10 to 20 per cent. of lives treated. The reasons for this are that about 80 per cent. of the available beds are occupied by incurables, patients are discharged too early, and there is in force no systematic medical supervision of their after life. For sanatorium treatment to be a success it is absolutely essential that this be changed. A scientific and trustworthy system of selection should be organized; only such cases as are deemed suitable for a cure should be admitted; a system, whereby the after life of the patient is supervised, should be perfected; and favorable surroundings and healthy work provided. For this there seems only one solution, the establishment of industrial colonies. In this way sanatorium treatment will be rendered as effective as possible, but other measures, such as better food, better housing, more open spaces, establishment of educational dispensaries, along with notification, isolation, disinfection, and house to house visitation will do more to eradicate consumption than many costly sanatoriums.

Frequency of Symptoms of Typhoid.—G. TREUPEL (*Münch. med. Woch.*, Sept. 26, 1905) gives the following figures, showing the frequency of the various symptoms in typhoid fever: Facts in the anamnesis pointing toward typhoid, 75 per cent.; a typical fever curve throughout the entire disease, 46.7 per cent.; bronchitis with the onset, 48.3 per cent.; relatively slow pulse, 86.7 per cent.; general subjective well-being, 56.7 per cent.; typhoid tongue, 16.7 per cent.; angina, 58.3 per cent.; abdominal symptoms, 61.7 per cent.; a palpable splenic tumor, 86.7 per cent.; typhoid roseola, 71.7 per cent.; diazo reaction in the urine, 73.3 per cent.; positive Widal reaction, 90.6 per cent.; positive blood-culture, 92.8 per cent. It will be seen that the latter symptom is a very valuable one, particularly since it appears very early. In not a few cases it was possible to grow the bacilli from the skin lesions or from the urine.

Amputation at the Hip-joint with Report of Four Cases by Wyeth's Method.—J. SHELTON HORSLEY (*Am. Med.*, Oct. 21, 1905), after giving a brief history of amputation at the hip-joint, mentions five different methods of controlling hemorrhage. (1) Ligation of the femoral artery before division. (2) Aortic and abdominal tourniquets. (3) Compression of the common iliac artery through the rectum by means of a lever. (4) The elastic tourniquet as used by Wyeth. (5) Compression of the common iliac through an ablominal incision. He quotes Poppert as saying that 70 per cent. of all deaths from hip-joint amputation are from hemorrhage, and consequently regards the methods of controlling hemorrhage as most important. He favors the method of Wyeth. He also emphasizes the importance of combatting shock both by precautionary measures, as blocking the nerves by injections of cocain into their substance, and by the use of intravenous infusions of adrenalin as recommended by Crile. He reports four cases with three recoveries and one death. The fatal case was one in which operation was necessarily done in presence of grave shock. Two of the cases were for tuberculous disease of the hip-joint, and in both instances blocking the nerves with cocain was resorted to, and, as a result, neither patient suffered from shock.

Atony of the Rectum and Colon, with Mechanical Methods of Treatment.—Atony of the intestine is a failure of the normal function of muscle coat. Ex-

perimenting upon dogs, T. B. TURCK (*Med. Rec.*, Oct. 7, 1905) extracted from the intestines, mechanically overworked, a toxin which when injected into other dogs produced fatigue and dilatation similar to that obtained artificially. During intestinal rest an antitoxin is formed which neutralizes the fatigue toxin both in vivo and in vitro. Atony and dilatation produce marked congestion of the abdominal circulation, which profoundly inhibits peristalsis. This leads to constipation, or constipation alternating with diarrhea, and this to the production of hemorrhoids. A frequent complication of hemorrhoids is rectal prolapse, which is noted especially where these atonic conditions are well marked. Usually the mucosa alone is involved. Rectal prolapse is frequently but a part of a splanchnoptosis, to which some individuals are more inclined than others. The diagnosis, in connection with history and symptoms, can be made accurate by examination of the feces observed during colonic lavage, and the reaction of the colon to distention. Drugs are useless as a cure. Surgery does not correct the atony, though obstructions must be removed. General gymnastics are only indirectly helpful. They may strengthen the abdominal wall, but do not increase peristalsis, or correct the atony. Enemata are useful for cleaning out the colon. They excite peristalsis, but do not corect the atony on acount of the resulting fatigue. They rather tend to create the enema habit, and increase atony. High temperatures should be used for colonic lavage. The injection of air directly is helpful, but in atonic colicky conditions retention may follow, resulting in increased fatigue or atony. This is, however, a useful method if the air is removed through the tube by abdominal pressure and massage. By confining air in a rubber bag which has previously been introduced into the lower bowel, the degree of exercise by distention is under the direct control of the operator. Intermittent distention of the bags in the rectum or colon for a short period gives sufficient exercise and massage of the muscle wall to gradually restore the atony and fatigue of the muscle to a condition of normal peristalsis. If the colon is partly distended with air, then the rubber bag inserted, intermittent compression of an attached Politzer bag, causes vibration of the air in the entire colon to the cecum. This massage effect is also a valuable method of treating hemorrhoids, ulcers, proctitis, prolapse of the bowel, and associated pathological conditions of the pelvic organs. Results have shown the restoration to be permanent.

Periarteritis Nodosa.—Peculiar changes in the vessels are held responsible for the following symptom-complex: Chlofotic marasmus with chronic nephritis, rapidly progressive paralysis with severe muscular pains, constant palpitation of the heart, intestinal symptoms and slight rises of temperature with profuse perspiration. Only about forty cases have been described in literature. M. BERSE (*Münch. med. Woch.*, Sept. 19, 1905) has carefully studied one case and finds that an inflammatory exudate first appears in the adventitia of the vessels. Fibrin will deposit and the muscle cells of the media will gradually disappear. The vessel will eventualy become thrombosed and the vessel walls yield, forming fusiform aneurisms. The symptoms all depend upon the localization of this process. As a rule, the vessels of the brain and lung are spared. The disease affects most frequently men between twenty and thirty-five years of age and runs an acute course, rarely lasting longer than three to four months. An absolute diagnosis during life is possible only if there are multiple subcutaneous nodules, consisting of lime salts. Owing to the rapid formation of thrombi, there is no disposition to hemorrhage. Many different theories as to the etiology of these changes have been discussed, yet it seems probable that syphilis is the sole cause.

The McGraw Ligature.—A. J. OCHSNER (*Journal A. M. A.*, Oct. 21) reports his experience with the McGraw ligature since December, 1902, when he saw the method demonstrated by its inventor. He has used the method 156 times and has come to the following conclusions: "1. Anastomosis with the McGraw elastic ligature can be accomplished in a satisfactory way (*a*) between stomach and intestines; (*b*) between intestine and intestine. 2. The opening can be made any desired length. 3. It can be made without carrying infectious material from the lining of the stomach or intestine to the peritoneum. 4. It can be performed quickly. 5. It requires no special skill or ingenuity. 6. The patient shows very little, if any, shock after the operation. 7. The patients are relatively very free from pain, and can usually sit up in bed with the aid of a head-rest a few hours after the operation. 8. The method should not be employed in making a pyloroplasty. 9. It should not be used in making a cholecystenterostomy." Ochsner quotes some of the special directions of Dr. McGraw, and has formulated the method in eleven steps as follows: 1. A round rubber cord, 2 mm. in diameter, made of the best material, should be used. 2. A posterior row of Lembert sutures is applied. 3. A long straight needle, armed with the rubber ligature, is passed into the lumen of the intestine and out again at the desired distance, from 5 to 10 cm. away from the point of introduction. 4. While an assistant holds the intestine the surgeon stretches the rubber in the needle, and when quite thin draws it rapidly through the intestine. 5. The same step is repeated through the stomach. 6. A strong silk ligature is placed across and underneath the rubber ligature between the latter and the point where the stomach and the intestine come together. 7. A single tie is made in the rubber ligature after the latter has been drawn very tightly. 8. The silk ligature is passed around the ends of the rubber ligature, where they cross, and is tied securely three times. 9. The ends of the latter are released and cut off, being held by the silk ligature. 10. The Lembert suture is continued around in front until the point of its beginning is reached, where it will be tied. 11. Care must be exercised to prevent tying the rubber ligature too far backward and thus getting behind the posterior row of Lembert sutures. He mentions, as a special help in following these directions, the illustrations of the article of Dr. H. O. Walker in *The Journal A. M. A.*, Jan. 17, 1903, p. 166. One hundred and twenty-four cases in which this method of operating was carried out at the Augustan Hospital are tabulated and the causes of death in the fatal cases discussed.

SURGERY.

Scopolamine-Morphine Anesthesia.—Both GABRIEL SEELIG and EMIL RIES report (*Annal. of Surg.*, August, 1905) a series of anesthesias in which scopolamine-morphine was administered as an adjuvant. Though differing slightly as to dosage and time of administration, the results obtained by both authors conform favorably. Seelig injected hypodermically scopolamine-

hydrobromate, grain 1-100, and morphine, grain 1-6, one-half hour before the administration of the general anesthetic, which in this case was ethyl chloride-ether; whereas Ries, following the method of Korff, gave one-tenth milligram scopolamine and twenty-five milligrams of morphine, divided into three doses and injected two and a half, one and a half and one-half hours before the operation, chloroform being relied upon to complete the anesthesia. The last-named author has also employed this method successfully as a precursor to the induction of infiltration anesthesia with 0.6 salt solution. It seems, therefore, that the method of Korff has two purposes in view, *i.e.*, first, the intention to perform the whole operation under this anesthesia alone, and second, as a preliminary to anesthesia by inhalation of chloroform or ether; whereas in the method adopted by Seelig the combined drugs are employed solely as adjuvants. If the method of Korff is successful, the patient becomes sleepy after the first injection, is fast asleep after the second, and unconscious and insensible to pain after the third. The operation may then begin one-half hour after the last injection, and can proceed for hours without any other anesthetic. The patients lie quietly, with eyes open or shut, pulse often rapid, sometimes slow, respiration quiet, pupils rigid, either dilated or contracted, and muscles relaxed, though this may not be complete. The patient continues to sleep for about five hours after the last injection. There is no retching or vomiting, and when the patient awakes, food can be given immediately. If such a course is not obtained, then chloroform or ether become necessary to complete the anesthesia. The advantages claimed by both writers for the routine employment of scopolamine-morphine as an adjuvant to general anesthesia are, that the amount of the general anesthetic required is markedly lessened, the salivation and the excitement of the preliminary stage is avoided, the liability to vomit is greatly reduced, and the quiet and freedom from pain afforded the patient after the operation is vastly increased.

Penetrating Wounds of the Abdomen.—RANDOLPH WINSLOW (*Journal A. M. A.*, October 7) discusses abdominal wounds and gives a lengthy summary of cases treated at the University Hospital, Baltimore. He remarks on the occasional definiteness of the symptoms and insists on the importance of early laparotomy, in a well-equipped hospital if possible. The apparent exception afforded by military experience as to the propriety of prompt operation and in the prognosis of these injuries is noted and accounted for by the special character of the modern military projectile causing a lesser mortality among patients not operated on, and the greater danger of increasing the risks of infection in operation. These conditions do not exist in civil practice, and there the earlier the operation the better. Shock, being due to hemorrhage, is not a contraindication; laparotomy should be done at once and the bleeding vessels secured. He insists on the importance of a thorough search in all parts of the intestinal tube, as perforations are liable to be overlooked. Wounds of the stomach and of the solid organs and their special characteristics are noted. Among the cases reported one is of interest on account of the fact that the aorta was pierced by a 32-caliber bullet, making a slit in its anterior surface and an everted counter opening behind, the bullet then lodging in the third lumbar vertebra. These were the conditions found on autopsy, the patient having lived 122 hours after the occurrence of the injury.

Choice of Method in Operating Upon the Hypertrophied Prostate.—In a discussion upon this topic WILLY MEYER states (*Med. Rec.*, October 7, 1905) that in the rank and file of prostatics surgical intervention should be urgently advised when the catheter must be given into the hands of the patient himself for regular use. The death-rate following operation is 5 per cent. and less, whereas the mortality due to pyelonephritis, resulting from self-catheterization, is surely much greater. To-day three useful operative procedures are in vogue, *i.e.*, suprapubic and perineal prostatectomy and galvano-caustic prostatotomy or Bottini's operation. Wherever the patient's condition, irrespective of age, seems to warrant it, prostatectomy should be done, since this procedure is more complete. The choice of route is largely a matter of individual inclination, but from present experience it seems justifiable to conclude that glands palpable per rectum and situated low, and hypertrophy of soft character in the early stages, frequently found to consist of smaller nodules, are to be attacked from below, whereas glands situated high and projecting well back into the bladder, tumors recognized by the residual urine or total retention and distinctly seen cystoscopically, and in patients with very foul urine necessitating bladder drainage, the suprapubic incision should be chosen. In the last-mentioned condition the gland should not be removed until the urine has cleared up under drainage. The preservation of the sexual function is important. In this respect the weight of present evidence seems to favor the suprapubic operation. If operation with the knife is refused, or there be contraindications to such intervention, Bottini's operation is in order. Cystoscopy is absolutely necessary before resorting to this procedure, and should also precede perineal prostatectomy that the presence or absence of a median lobe and calculi be determined. In addition to self-catheterization, another strict indication for operation is persistent severe pains in the perineum, neck of bladder and glans penis, resisting ordinary treatment.

Responsibilities of Surgery.—M. H. RICHARDSON (*Journal A. M. A.*, October 7), in his chairman's address before the Section on Surgery and Anatomy at the Portland Session of the American Medical Association, dwells especially on the importance of the qualifications of the surgeon, both by education and practical training, diagnostic ability, operative judgment, technical skill and in after-management of the case. He thinks that too many physicians who lack both training and surgical judgment try to be surgeons, and that even in small places surgical practice should be confined to one or two competent men who, in turn, should give up their medical cases to their non-surgical brethren. He gives illustrations in support of his views, and thinks that suits for damages, unjust as most of them are, may, in the end, work out the proper solution of the problem. It is these that bring out the responsibilities of surgery more than anything else. The responsibilities for advising operation, for performing it and for after-care are greater than skilled surgeons often realize, an example, the interval operation for appendicitis, which is commonly called a perfectly safe operation. He asks what should be the education of the surgeon, and besides the mental qualities of hopefulness and endurance he mentions manual skill, which alone, however, is of little value without the finer mental qualities that permit of accurate decisions from intelligent observation. The surgeon should be a mechanic and should have a thorough knowledge of practical anatomy and of pathology, but the chief preparation must be in the direct contact with patients, and the best preparation that a man can have for becoming a practical surgeon, he thinks, is being an assistant in a

hospital. Four, five or six years of this, he thinks, is little enough.

Fracture of the Spine.—In a summary of the 244 cases of fracture of the spine which were treated at the Boston City Hospital from 1864 to 1905 (*Annal. of Surg.*, October, 1905) HERBERT L. BURRELL presents the following analysis: *Frequency of Symptoms.*—Crepitus, 37.8 per cent.; deformity, 68.1 per cent.; unconsciousness, 17.6 per cent.; paralysis, complete, 71.7 per cent.; paralysis, partial, 11.3 per cent.; paralysis, none, 13.1 per cent.; pain, 74.8 per cent.; priapism, 27.04 per cent.; delirium, 17.6 per cent.; cystitis, 28.0 per cent.; bed sores, 26.6 per cent. *Regions.*—Cervical, 33.9 per cent. Deaths, 85.7 per cent.; recoveries, 14.3 per cent. Upper dorsal, 16.7 per cent. Deaths, 76.7 per cent.; recoveries, 23.3 per cent. Lower dorsal, 32.9 per cent. Deaths, 56.1 per cent.; recoveries, 43.9 per cent. Lumbar, 16.3 per cent. Deaths, 50.0 per cent.; recoveries, 50.0 per cent. *Mortality.*—Deaths, 64.5 per cent.; recoveries, 35.5 per cent. *Time.*—Total deaths, 64.5 per cent. Within five days, 65.7 per cent.; within ten days, 8.6 per cent.; within one month, 12.1 per cent.; after one month, 13.3 per cent. *Results.*—Total recoveries, 35.5 per cent. Useful, 62.2 per cent.; useless, 37.8 per cent. Three types of cases are recognized: (1) Cases in which the cord is crushed; (2) cases in which doubt exists as to whether the cord is irremediably damaged; (3) cases in which it is fair to assume that the cord is not irremediably damaged. The first type forms by far the largest class of spinal injuries. In some cases it is obvious from the character of the injury that the cord is severed or crushed, but in any case transverse destruction of the cord may be deduced from the persistence of the following symptoms: the total loss of all reflexes, complete insensibility to touch and pain, and motor paralysis below the level of the lesion. The treatment may be considered under the headings: (1) Expectant; (2) reduction and fixation; (3) operation, which may be primary or secondary. The expectant plan is applicable to fractures of the spinous processes or even of other bony structures where there are no cord symptoms. The patient should be fixed in bed, preferably on a Bradford frame. Reduction and fixation should be reserved for cases which present no cord symptoms, and for cases not hopeless which refuse an open operation. In such cases the patient should be turned as a whole, rectification should be attempted very slowly, and during every step of the operation the condition of the cord, as shown by sensation, motion and reflexes, should be known. Should the slightest sign or symptom of cord injury or pressure develop, immediate open operation should be done. The deformity may be corrected and the jacket applied with the body in suspension. There should be enough hyperextension to open the narrowed canal to its normal limits. Open operation extends the most reliable hope. The method used is Munro's laminectomy. The immediate operation is advocated unless distinctly contraindicated by shock, for the reasons that otherwise it is impossible to ascertain the condition of the cord, and again if pressure exists and is allowed to persist for many hours, irreparable damage to the cord may result. In many cases by open operation only is it possible to determine whether the cord is crushed or pressed upon by bone, blood or exudate.

Office Treatment of Diseases of the Rectum.—Speaking from personal experience, CHARLES B. KELSEY describes (*Med. Rec.*, October 14, 1905) some new methods of dealing with rectal diseases in the office. These procedures depend largely upon the modern effective employment of local anesthesia. For this end both cocain and eucaine are advised, whereas simple water anesthesia is described as a scientific curiosity long known. Relatively, few rectal cases require more than local anesthesia, which may be induced either by hypodermic injection or by local absorption. There are two operative methods for curing fissure of the anus, dilatation of the sphincter and incision of the base of the ulcer. Both procedures cure the ulcer by inhibiting muscular action, but stretching requires general anesthesia carried to its limit, whereas incising can be done with ten minims of eucaine placed hypodermically under the fissure. Either method will be equally successful, but the latter avoids the popular idea of a so-called surgical operation as well as that dreaded element, ether. Pruritus ani is best relieved by actual cautery, where strong solutions of salicylic acid have been of no avail. Here the secret of success lies in destroying the old hypertrophy. Cautery may be applied at different points at successive intervals under local anesthesia or, once for all, under general anesthesia. The former method is the most efficient, for the reason that after what the patient considers a radical operation an immediate cure is expected, whereas the destruction of the skin is only one step toward cure and only a part of a general course of treatment, which generally includes many other things. It is possible in some of the simplest cases of fistula to bring about a cure under local anesthesia and incision, but as a rule these cases require general anesthesia and careful dissection. Hemorrhoids are dealt with by means of the galvano-cautery after anesthization with eucaine. Ten or fifteen minims of a weak eucaine solution are first deposited in the most prominent part of the tumor, and after a delay of a few minutes, to allow this to take effect, a platinum needle, heated to the point of redness, is plunged fairly into the pile. One or, at most, two applications are enough at one time, and these should not be made oftener than twice a week at first. After four or five of these applications, if pain and soreness results, it is well to stop treatment for a week. The time consumed by the method in an ordinary case is usually about three months, but the patient is not confined to the house and is able to attend to business. Complications, as abscess or hemorrhage, have not been met with, and results are permanent. Either the ligature or the clamp operation, preferably the former, may, in selected cases in which no stretching the sphincter is necessary, be performed under local instead of general anesthesia, and the results as to pain and confinement will be exactly the same.

OBSTETRICS AND GYNECOLOGY.

The Infantile Uterus and Its Treatment.—The uterus of the infantile type, with its undeveloped musculature, long, narrow cervix, anteflexion and stenosis of the internal os, is a condition of comparative frequency. The symptoms associated with this condition have been attributed to various causes, such as (1) hyperesthetic tissue lining the uterus, due to degeneration and atrophy; (2) a sensitive area at the internal os, which, in the presence of escaping fluid or a foreign body, causes pain and spasm of the circular fibers at this point; (3) closure of the canal by a swelling of the mucous membrane during menstruation; (4) as a result of the undeveloped lymphoid substance, clotting may take place, thereby increasing the mechanical difficulty of menstruation; (5) mechanical obstruction to the outflow of blood, due to a stenosis of the internal os or cervical canal. C. W. BARRETT (*Am. Jour. Obstet.*, September, 1905) calls attention to the importance of prophylaxis in regard to this con-

dition. Proper attention should be given to the health of girls, especially at the approach of puberty. Nerve tension should be relieved, right living, with baths, exercise and outdoor life should be insisted upon. The writer presents a method of operation for the relief of the condition which has proved satisfactory in many cases. After dilitation, followed by curettage if necessary, the abdomen is opened and the uterus brought well forward into the wound. A longitudinal incision is made over the internal os, which is sutured in a manner to change it into a transverse incision, thereby broadening the cervix the length of the slit and shortening the posterior walls to the same extent. If a membranous constriction exists, the incision should be carried through into the cervical canal.

Congenital Hematoma of the Sternomastoid in the Newborn.—The swelling of the sternomastoid in newborn infants is usually traumatic in origin. L. PINCUS (*Centralb. f. Gynecol.*, No. 20) says that a chronic myositis may follow a typical hematoma in some cases. The swelling is seen both in vertex and breech presentations, and may occur after spontaneous delivery as well as after surgical interference. The lesion is usually produced by the severe stretching of the muscle due to the separation of the two extremities during rotation and descent of the child. The writer reports the case of a woman who received a severe blow on the abdomen four weeks before labor. The child had a swelling of the sternomastoid in which no pigment was found to indicate the occurrence of a hematoma. The condition is explained by assuming that the child was injured at the time the blow was received by the mother. Syphilis is an important factor in predisposing to the condition.

Surgical Sterilization of Women.—The performance of an operation which will render a woman sterile for life is never justifiable except to avoid a pregnancy which would be dangerous to health or life. R. CHROBAK (*Centralb. f. Gynecol.*, No. 22) states that a condition that justifies abortion may not justify castration. A contracted pelvic should not be considered an absolute indication for sterilization, since Cæsarean section, with modern technic, has become a comparatively safe operation. Chronic nephritis may be considered an indication for sterilization, psychic and nervous conditions are a doubtful indication, insanity may be curable and if severe asylum treatment would render sterilization needless. In tuberculosis of the lungs abortion should be performed if there is hope for a cure, in hopeless cases sterilization is justifiable to avoid the strain on the mother's system of bearing and nursing the child. The most satisfactory operation to accomplish sterilization is to remove the entire tube, followed by closure of the horn of the uterus.

A Method of Guarding the Perineum.—W. J. CAIE describes a modification (*Brit. Med. Jour.*, September 16, 1905) of the method which protects the perineum during the second stage of labor by the direct pressure thereon of the concavity between the thumb and forefinger of the right hand. When the fetal head is moderately distending the perineum, the latter and adjacent parts are thoroughly dried with a hot sterile towel. When the tension on the perineum is approaching the maximum, the accoucheur presses with the left hand upon the vertex to prevent sudden expulsion. The right hand then grasps the perineum in the manner described, but with this difference, that between it and the perineum is interposed a hot sterilized towel in such a way that the edge of the concavity between the thumb and index finger, the edge of the towel and the lip of the perineum are just in line with each other, a double fold of the towel to fit into the apex of the concavity having previously been made to supply the deficiency at that point. Firm pressure is then exerted at every pain, through the bitemporal diameter. No attempt is made to push the head forward until the occiput ceases to engage. Thus three purposes are served: premature extension of the head is prevented without retarding its progress; a much firmer grip and consequently much greater support is maintained, and uniform pressure is obtained on all parts of the perineum.

Treatment of Cancer of the Uterus.—WERTHEIM describes an operation for removal of cancer of the uterus (*Brit. Med. Jour.*, September 23, 1905) by the abdomenal route. After a preliminary treatment per vaginam by curetting and burning with Pacquelin's cautery, and after minute disinfection, the patient is placed in the Trendelenburg position, and the abdomen opened by a median longitudinal incision. By dividing the posterior layer of the broad ligament the ureters are exposed. Avoid isolating them all around and spare as much as possible their surrounding vascular network. After dividing the peritoneum, the bladder must be separated from the uterus. Then ligature and divide the infundibulo-pelvic, broad and round ligaments. Next the uterine vessels with the surrounding cellular tissue are ligatured and divided. This done, the uretera become easily accessible and are to be separated from the tumor. The bladder itself in its deepest part also should be separated from the tumor and the vagina. Next follows the division of the posterior layer of the peritoneum and the separation of the rectum from the vagina. Isolation now being complete, removal of the organ follows. For this purpose the two layers of the parametrium are taken off as close as possible to the pelvic wall, and the vagina cut across, having just previously been wiped out with dry sterile gauze and clamped off from the tumor above. Every lymphatic gland at all enlarged in the region of the great iliac vessels up to the division of the aorta and downward as far as the obturator foramen must be extirpated. The cavity created by the removal of the tumor is filled in loosely with strips of iodoform gauze, extending down to the vulva, and an exact closing of the peritoneal cavity over this gauze effected by sewing up the anterior and posterior flaps of peritoneum. The gauze is removed in successive strips in from five to ten days. This operation has not only reudced the mortality materially but has raised the proportion of cases suitable for operation from 15 to 50 per cent. Furthermore, from the more accurated information obtained as to the condition of the parametria and lymphatic glands, it has been learned that in only 40 per cent. of cases can vaginal extirpation be considered a radical operation.

Pyoneplerosis, Pyelitis and Compression of the Ureter During Pregnancy.—A. SIPPLE (*Centralb. f. Gyn.*, No. 37, 1905) relates the history of a primigravida, thirty-three years of age, who suddenly developed abdominal pain and fever in the sixth month of her gestation. There were no bladder symptoms and no urinary changes shown by the ordinary clinical examinations. A large, fluctuating, extremely tender tumor of the left upper quadrant of the abdomen proved at the operation performed through a lumbar incision to be a large abscess of the left kidney, which was incised and drained. After placing the patient upon her right side in order to avoid compression of the ureter by the pregnant uterus, pus was found in the urine. The wound promptly healed, but pus continued to show itself in the urine. At the thirty-fifth week, after an induced

labor had been planned in order to hasten the cure of the pyelitis, spontaneous delivery of a living child occurred. Puerperium was normal with the exception of the pyuria, which persisted for several weeks. The writer ascribes the origin of this condition to an ascending infection due to compression of the ureter by the pregnant uterus, which thereby prevented the normal flow of urine and interfered with the peristalsis of the ureter, thus favoring the ascent of bacteria through the bladder ostium. The author reviews in this connection his own previous work and that of Halberstma on the association of eclampsia with compression of the ureters, he still believing that a disturbance in the excretion of the kidneys to be a prime factor in the etiology of this disease. After numerous observations the writer believes that fever from ureter compression can arise during pregnancy, not from absorption from the pelvis of the kidney, but from the site of compression in an analogous way to urethral fever after catheterization. In regard to treatment, attention is especially called to the plan of placing the patient on the sound side in order to relieve the pressure of the ureter. Acute intracapsular pressure might be relieved by nephrotomy or by the Edebohls' operation.

Fibroid Tumors of the Uterus.—In a very interesting paper on uterine fibroids F. H. MARTIN (*Chic. Med. Rec.*, September 15, 1905), after detailing the statistics on the subject and outlining the method of treatment best suited for each class of cases, concludes by stating: (1) The routine treatment for fibroids of the uterus, presenting symptoms, in women under forty-five years, should be supravaginal hysterectomy, except as hereinafter stated. The exception to this rule should be (*a*) in subperitoneae tumors either pedunculated or not, in which only one or more distinct developments exist which do not materially increase the size of the uterus proper and the area of its endometrium, when myomectomies may be resorted to; (*b*) in fibroids which present excessive hemorrhagic tendencies, in which the hemoglobin is reduced below 25 per cent., or in which serious vascular, cardiac or kidney complications exist which greatly increase the risk of the operation, when a preliminary operation of vaginal ligation of the uterine arteries should be resorted to; (*c*) in cases where a radical operation will not be accepted, a curettement and vaginal ligation of the uterine arteries may be resorted to, or, if no operation at all will be accepted, general tonics, ergotine in tonic doses, and galvanism scientifically applied may be depended upon to relieve the patient materially, and occasionally tide them over the menopause to a complete symptomatic cure. (2) The treatment for large, complicated tumors without regard to age, or large, apparently uncomplicated, tumors in which symptoms of hemorrhage or pressure exist, should be supravaginal hysterectomy. (3) Tumors of medium size, apparently uncomplicated, in women over forty-five years of age, may be managed by one of the less radical forms of treatment, viz., (*a*) when the tumors are of the symmetrical development type, enlarging uniformly the uterus, and the principal symptom is an exaggerated menstrual flow, the cases may almost invariably be relieved by galvanism and tided over the menopause; or (*b*) f the growth is of the irregular type which has more or less distorted the uterine cavity, the case should be submitted to dilatation, finger exploration, curettement, and, if considerable flowing is a symptom, vaginal ligation of the uterine arteries, with the idea of obtaining a symptomatic cure over the menopause. (4) The extremely small class of tumors coming under the head of "inoperable" cases must be managed on general principles—rest in bed, general tonics, treatment of the cardiovascular and kidney complications when they exist, curetting and irrigating for septic endometritis, electricity for pain and hemorrhage, ligation of the uterine blood supply, if practicable, for intractable hemorrhage and vaginal incision of impacted cysts or pus accumulations.

PRESCRIPTION HINTS.

Gargle in Follicular Tonsillitis.—GEORGE LAURENS, in *Gazette des Hopitaux*, September, 1905, recommends the following gargle in cases of granular tonsillitis:

℞ Borate of sodium .....grams 6
Glycerin .....grams 10
Peppermint water .....grams 40
Distilled Water .....grams 100

Ambulant Treatment of Internal Piles.—C. F. MARTIN, of Philadelphia, recommends the injection method of treating internal hemorrhoids. His technic consists in the injection of 7 to 10 minims of a 50 per cent. solution of phenol into each pile tumor at intervals of from two to seven days, depending upon the effect produced. As a preliminary to beginning the injection the author recommends divulsion of the sphincters under nitrous oxide anesthesia, much of his success with the method being attributed to this procedure. He concludes that there are not more than 15 per cent. of recurrences, and that accidents and complications are by no means so frequent as after the ligature and clamp and cautery operations. In addition, the method is practically painless, and the patient is not detained from business.

Infantile Diarrhea.— M. PERRET (*Rev. de Hyg. et de Méd. Infant.*, Vol. 4, No. 4) recommends the following treatment:

℞ Benzo-naphtol 0.50
Bismuthi salicylat. 1.00

D. in Pulv. No. iij. Sig. one t.i.d.

As an astringent to be given when the child is given only water as diet, is recommended the following:

℞ Acidi lactic 3.00
Syr. mali cydonici (quince).....25.00
Aquæ destil. 100.00

M. et Sig. One teaspoonful every half hour to a child one year old. After the first year the dose is a tablespoonful. Another useful prescription is:

℞ Bismuthi phosphat. solubil. 2.00
Syr. simplic. 10.00
Aquæ destil. 90.00

M. S. One teaspoonful every hour.

Acne Vulgaris.—In superficial acne, lotions of the face, twice a day, are very beneficial. Bicarbonate of soda (3 per cent.), spirit lotions to which are added salicylic acid (2 per cent.), resorcin (2 per cent.), or even a corrosive sublimate solution:

℞ Eau de Cologne .....12 ozs.
Sublimate .....5 grs.

After these lotions cold cream or some other similar preparation should be applied to the skin.

If the skin is tolerant, the following mixture might be used on the face once a week:

℞ Precipitated sulphur .....3 drams
Proof spirit .....4 ozs.
Water .....6 ozs.

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SATURDAY, NOVEMBER 18, 1905.

PROFESSOR BEHRING'S PROMISE.

Rarely has an announcement to a scientific body been fraught with such incalculable significance to the progress of civilization and of medical science as has Professor Behring's recent declaration before the International Congress of Tuberculosis at Paris, that he has discovered an efficient antitoxin for tuberculosis. So numerous have been similar claims, put forth in the past, that the public has taken scarcely more than a passing interest in the cabled reports of Behring's announcement. Yet, the reputation of the discoverer of the curative serum of diphtheria is such that his present statements compel an attention which few other men can hope to claim.

It is upon the basis of his success in the treatment of tuberculosis in cattle with bovaccine that Professor Behring has built his later researches on the curative principle of human tuberculosis. His former work has certainly proved a valuable introduction to the more important problem. Indeed, it was an indispensable preliminary, for most of the signal triumphs in human therapeutics have been rendered possible by means of animal experimentation. But, Behring's previous work was more than an experiment. It was primarily a contribution to veterinary medicine, and secondly, by preventing the spread of bovine tuberculosis, it would tend to restrict the incidence of human tuberculosis, assuming that both forms of the disease are identical.

The paper read by Professor Behring before the Congress of Tuberculosis and which is published in *Archives Générales de Therap.*, Oct. 23, 1905, furnishes data which are too scant to enable one to pass intelligent judgment upon them. In the nature of a preliminary communication, this contribution comes from too serious a mind to be dismissed as an abortive fancy of a self-advertising enthusiast. A well-earned reputation would not be foolishly jeopardized by claims having no foundation in fact. Unfortunately, the experimental details of his work and the mode of preparation of his antitoxin have not yet been revealed by the distinguished recipient of the Nobel award. He has submitted only a brief outline of the drift of his discoveries. The extreme optimism of his utterance and the frank admission of the opposition and criticism which he expects, indicate that Professor Behring has not been carried away by the exuberance of his enthusiasm.

The promised tuberculous antitoxin will be far different from any antitoxin that has been produced in the past. Unlike that of diphtheria, which circulates freely in the blood, and thus belongs to the humoral class of antitoxins, the tuberculous antitoxin is part of the body cells and is to be recognized as a true cellular antitoxin. The latter is produced as the result of the union of a part of the tubercle bacillus with the protoplasm of the cells.

It is only a part of the toxin of tuberculosis that combines with the body cells, and the effective antitoxin substance that is the result of this union is designated as TC. In fact, the toxin contained in the tubercle bacillus consists of three parts. One part is soluble in alcohol and ether and is called TL. Another portion is soluble in dilute saline solution, being a globulin, and is termed TGl. The third part consists of an insoluble amorphous residue, TX, which combines and enters into symbiotic relationship with the cells of the individual acting as host for the tubercle bacillus. As the result of this union the effective antitoxin, TC, is formed. The tubercles and granulations that are formed at the site of the tuberculous infection are the morphological expression of the chemical changes that have taken place within the cells.

The above is all that Professor Behring has vouchsafed to the world as to the nature of his new antitoxin. The question may now be asked: Has this substance proved its curative power in human tuberculosis? The answer is no. In spite of the utter absence of any proof of the therapeutic efficiency of the tuberculous antitoxin, Professor Behring is sanguine that the chemical tests, which he is about to invite his colleagues to make, will fulfil his anticipations. Until then, the medical profession may hope that the genius of Behring will vindicate itself.

"PRESIDENT ROOSEVELT'S CANAL."

THE address of Chairman T. P. Shonts, of the Isthmian Canal Commission, before the American Hardware Manufacturers' Association, at Washington, is not only a vigorous protest against the unjust criticisms of the daily press, concerning the alleged delay in the progress of the construction of the canal, but is also a direct refutation of the charges.

For some time past the papers have been filled with the complaint that the engineers engaged in this work "have not made the dirt fly." In answer to this, Chairman Shonts replies that "they had made the filth fly," and that the question of sanitation, and the providing of healthy quarters for the men, the installation of a sufficient commissariat, and the general clearing up of the ground, were all matters that had to be attended to before the digging of the canal itself was undertaken. And in this, unless it is the desire of the present Commission to vie with the French régime in the number of deaths, he is unquestionably correct.

All this work has been steadily progressing. There are now over 4,100 men employed in sanitation alone, and Mr. Shonts predicts that within a year Panama will be a city, well watered, well paved, and clean and healthy. The same, he declares, is being done for Colon and for every important labor camp across the Isthmus.

As to the supplies, these have been purchased in large quantities, which will afford to all employees an opportunity of obtaining wholesome food at a reasonable cost. That there should have been some delay in handling and distributing these stores in the early days of the Commission is very natural, as they of necessity met with the same obstruction and delay as did the mass of materials and purchases of the Commission, the approximate cost of which amounted to about $9,000,000. For even if the docks, wharves and warehouses, terminal yards, locomotives and cars of the Panama Railroad, had been in good repair, which they were not, they still would have been entirely inadequate to properly care for and handle the small business that the road was transacting.

But the existing facilities, poor as they were, it seems were rendered less efficient by the entire absence of any mechanical appliances on the docks for assisting, receiving and discharging the cargoes. As the negro laborer was the sole power employed, he was at once the only hoisting machine and the only traveling crane in use. Such being the case, it is easy to understand the congestion which naturally ensued, when the accumulated orders in the United States began to arrive in large quantities on both sides of the Isthmus.

To aggravate the situation, Mr. Shonts continues, while the deluge of arriving material was at its height, and when it was thought that affairs could get no worse, two cases of bubonic plague at La Boca resulted in two consecutive quarantines at that place, completely tying up that outlet for sixty days. In order to overcome these difficulties, it was consequently necessary to begin at once the construction of new wharves, equipped with modern mechanical appliances, and large terminal yards at both ends of the road. They have also been constructing extensive storehouses, so that the preliminary work has of a necessity retarded the actual digging of the canal; they have in fact been not only making it, but making the machine that makes it.

All this shows wisdom and executive ability. It also indicates humanity of the highest and broadest type. For if one thing has been demonstrated, not only in the history of this canal, but in all the large engineering and mining enterprises that have been undertaken by Northern nations—particularly Great Britain—in unhealthy or semi-barbarous lands, it is that the work must be done with a lower class of labor than we know anything about in the United States. Either with West Indian negroes, Chinese coolies, or the very dregs of the labor supplies of the world, whose only good quality, remarks the *Providence Journal*, is their brute strength, supported by great powers of endurance under very trying climatic conditions. For it is entirely impossible to get common laborers to go to Panama, with all the discomforts and

risks involved, who have sufficient intelligence and sense of responsibility to be dealt with as entirely free agents.

They should in fact be treated as children. Their discomforts must be mitigated by careful sanitation and scientific alimentation, but the relation of those in charge of them, says the same authority, ought to be very much that of a humane and judicious owner toward his pack animals. A case in point is that of a consignment of Martinique negroes, which had been obtained and brought from their home on specific conditions, which they doubtless understood as well as they were capable of comprehending anything. When about to be landed, a seemingly insane unwillingness to leave the ship attacked a large number of them, resembling the senseless stampede that sometimes spreads among a drove of cattle, and they were only landed on the wharf by the application of such physical force as was necessary.

Now this may be in violation of all the principles of labor-unionism, but the naked truth is that much of the unskilled work on the Isthmus, like that in the mines of South Africa, will be performed by a class of laborers that will have to be forced into observing the rules of health.

All this is a case for the doctor, and not a subject for political stump oratory, and when Senator Foraker, in his recent speech at Bellefontaine, called for non-partisan consent in pushing the completion of the canal, it was simply one more instance of something already builded better than he knew. For the engineer in charge states that it is his confident belief that by the first of January next the plant, as purchased, will be installed and working to its full capacity, so that it will be in truth what Chairman Shonts termed it—"President Roosevelt's Canal."

CATALYTIC ENZYMES.

THOSE mysterious agents termed enzymes, by the action of which molecular disruption may be brought about, with the minimal amount of energy loss and without themselves entering into the new chemical combinations formed, are establishing themselves more and more as the precursors of many of the most important of the physiological processes of the animal as well as the plant body.

As is well known, many animal tissues have the property of decomposing peroxides, notably hydrogen peroxide, and within comparatively recent time it has been shown that this reaction is due to the activities of an enzyme catalase; being the term applied to it pending its more thorough investigation.

Some time past Liebermann advanced an idea that the oxygen liberated by catalase, as found in both animal and plant tissues, was thrown off in a molecular condition, and not in the active atomic state which is seen when hydrogen peroxide decomposes spontaneously. Liebermann's idea has been partly verified by Shaffer (*Am. Journ. Physiology*, Oct. 2, 1905), and it can readily be seen that the molecular state of the oxygen given off in the decomposition of the peroxides has an important bearing on the subject of the germicidal value of those widely used substances. There are, fortunately, other substances in the body tissues which break up the peroxides, some of which are thought to be oxidizing enzymes. Were it not so, and if Shaffer's conclusions were to be true that catalase is not an oxidizing enzyme, then the explanation of the clinical value of the peroxides as bactericides would need to be sought in some other direction.

On the other hand, however, Shaffer suggests that catalase may serve a purpose in the body by reason of its ability to destroy the peroxides, and in such a manner that the oxygen is not liberated in an active condition, and thus to protect the tissues from injurious oxidation which the peroxide would otherwise effect.

From another side the study of these catalytic agents is offering fruitful results. The vexed problem of narcosis, it has been shown by Neilson and Terry (*Am. Journ. Physiology*, Sept. 1, 1905) is capable of partial analysis in the light of the behavior of catalytic enzymes to various antipyretic and sleep-producing substances. Using kidney extract in contact with hydrogen peroxide these authors have found that the general effect of the hypnotics is to retard the rate of catalysis. The degree of their retarding action is as follows: Chloretone is the most powerful. Then follow chloralamid, chloral hydrate, bromides, croton chloral, paraldehyde, urethane, hedonal, in the order named. It is thus seen that there is a marked resemblance between their action as hypnotics and their retarding actions on the rate of catalysis of peroxide of hydrogen. On the other hand, antipyrine has a stimulating effect on catalysis. The results of this investigation bear out the hypothesis that the various

vital processes are of the nature of enzymatic actions, and that sleep is the result of an interference with certain catalytic powers in the cell.

ECHOES AND NEWS.

NEW YORK.

The Harvey Society.—The fourth lecture in the Harvey Society course will be delivered by Dr. P. A. Levene, at the Academy of Medicine building, on Saturday evening, November 18, at 8.30 P.M. Subject: "Autolysis." All interested are invited to attend.

New York Surgical Society.—At the annual meeting of the New York Surgical Society, held November 8, 1905, the following officers were elected for the ensuing year: President, Dr. George Woolsey; Vice-President, Dr. Joseph A. Blake; Secretary and Treasurer, Dr. John A. Hartwell.

Beth Israel Hospital.—The Beth Israel Hospital has received an offer of a donation of $5,000 from a friend of the hospital, through Mr. Uriah Herrmann, a director of the institution, with the provision that an additional $10,000 be raised in donations and membership dues, through the efforts of the directors and their friends, before December 1, 1905.

The East-Side Physicians' Association.—An interesting meeting was held on Friday evening, November 17, at 67 St. Mark's Place (Eighth Street), near Second Avenue. The program consisted of presentation of patients, instruments, specimens and a paper by Dr. Howard A. Kelly, of Johns Hopkins University, was read. Discussion by Drs. L. B. Bangs, F. Tilden Brown, Rannon Guiteras, George E. Brewer, Frank Hartley, H. J. Boldt, Winfeld Ayres.

New York University.—The first meeting of the reorganized Medical Faculty was held this week. The former system of a governing faculty has been abandoned, and the present meetings are those of the single faculty, comprising all professors, including adjuncts and assistants, but not those of the clinical department. These and other instructors may attend faculty meetings on invitation. An advisory board is appointed from this faculty by the university corporation.

Arrest for False Report.—On November 8, 1905, in the court of Special Sessions, a physician of this city was found guilty of making a false report as to the cause of death in the case of Jennie Thompson, who died at 165 West Forty-seventh street, on July 6, 1905. Upon the certificate of death the cause of death was given as "sloughing fibroid tumor and paralysis of the heart"; an autopsy revealed the fact that a criminal operation had been performed. The cause of death, as stated by the Coroner's Physician, was "sepsis following uterine infection." This is the first time in the history of the Department that a physician has been imprisoned for making a false report to the Department.

The Biograph in Neurology.—Dr. Cecil MacCoy, of Brooklyn, N. Y., last week exhibited before a selected audience, made up of neurologists, some vitascopic pictures of symptoms and manifestations of nervous disease. The following subjects were beautifully photographed as moving pictures: Typical ataxic gait early and late tabes; ataxia of the upper extremities; Romberg symptom; tremor and attitude of paralysis agitans; gait in paralysis agitans with propulsion; hemiplegic gait; spastic paretic gait; increased reflexes—ankle clonus; hysterical ataxia—intention tremor simulating multiple sclerosis; hysterical paraplegia—learning to walk; general gaits seen about a large nervous ward; chronic major chorea; and muscular dystrophy.

Civil Service Examinations for the State and County Service.—By recent action of the State Civil Service Commission, approved by the Governor, the civil service rules have been extended to cover the county service of the counties of Albany, Monroe, Onondaga and Westchester, in addition to the counties already classified. The examinations for positions in the county service are held by the State Civil Service Commission. Examinations will be held on December 9 for the following positions in the State and county service: Assistant chemist, Cancer Laboratory, Buffalo, $720; health officer, town of Hamptonburg, Orange County; physician in State hospitals and institutions, $900; trained nurse, $420 to $600 and maintenance. The last day for filing applications is December 4. Application forms and detailed information may be obtained by addressing the Chief Examiner of the Commission at Albany.

National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.—The Association cordially invites the profession to attend the sessions of its fifth annual meeting to be held in the main hall of the Academy of Medicine, 17 and 19 Forty-third Street, New York City, on November 29, 1905. The first session will begin promptly at half after 2 o'clock in the afternoon; the second, at 8 o'clock the same evening. The following is the program: Presidential Address, by Dr. Wm. P. Spratling, Sonyea, N. Y. Reports on Progress in the Public Care of Epileptics, New Jersey, by Dr. H. M. Weeks, Skillman; Kansas, by Dr. L. M. Perry, Parsons; Texas, by Dr. John O. Preston, Abiline; Indiana, by Hon. Ezra Mattingly, Washington. Conditions as to the Care and Treatment of Epileptics in Australia, by Miss Alice Henry, England. Organic Epilepsy, by Dr. D. R. Brower, Chicago; Organic Epilepsy, by Dr. Morgan B. Hodskins, Palmer, Mass.; The Management of the Individual Epileptic, by Dr. Edgar J. Spratling, Forsyth, Ga. Value of Hydrotherapy in Epilepsy, Dr. Guy Hinsdale, Hot Springs, Va. Can a Colony for Epileptics be Made Self-Sustaining and, if so, How? by Dr. Thos. C. FitzSimons, Wilkesbarre, Pa. Blood Pressure Observations in Epilepsy, by Dr. Edward A. Kennedy, Palmer, Mass. Statistics of Epileptics in Hampden County, by Dr. Everett Flood, Palmer, Mass. The Use of a Ferrated-Aperient-Bromide Water in the Treatment of Epilepsy, by Dr. G. K. Collier, Sonyea, N. Y. Report of a Patient with Epilepsy for Sixty-two Years, Fifteen Thousand Seizures, by Dr. Matthew Woods, Philadelphia. Evening session, 8.15 o'clock: A Note on Peculiar Attitudes During Sleep in Epilepsy, with illustrations, by Dr. N. B. Ross, Sonyea, N. Y. Report of a Case of Unusually Low Temperature Following Status Epileptics, by Dr. N. B. Ross, Sonyea, N. Y. Epileptic Automatism, by Dr. Edward Cowles, Boston, Mass. Traumatic Psychic Epilepsy, by Dr. Pearce Bailey, New York City. Hospital Care and Treatment of Epileptics, by Arthur O. Morton, Palmer, Mass. Biographs of Various Types of Epileptic Seizures (other pathologic conditions affecting movements will be shown), by Dr. W. P. Spratling, Sonyea, N. Y., and Dr. W. G. Chase, Boston, Mass.

Two Great Tuberculosis Hospitals for New York.—Almost simultaneously two departments of New York's municipal administration have made public

the details of important advances in the campaign which is waging against tuberculosis, says *Charities*. So entirely distinct and independent have been the efforts of the Department of Health and the Department of Public Charities that the daily newspapers, although publishing the respective plans within a few days, and in several instances accompanying the statement with editorial comment have, nevertheless, not connected the two proposed institutions or given any indication that they are in reality only two parts of one important undertaking. The health department has acquired a site in Orange County, on which there is to be conducted a sanatorium and inexpensive camp for incipient cases. Patients are to be provided with employment; eggs, vegetables and milk are to be supplied, so far as practicable, from the farms acquired by the city for the sanatorium; and cures are to be effected by fresh air, sunlight, outdoor exercise and abundant nourishment. The Department of Public Charities, on the other hand, is to build on Staten Island, on land already belonging to the city, a hospital for 800 patients in all stages of the disease. While provision will be made for the medical and sanatorium care of early cases, it is probable that in the natural division of work between the two institutions a large proportion of those that are cared for on Staten Island will be advanced and incurable cases. The function which it will perform will be none the less useful on that account, since the removal of advanced cases from tenement homes with the lessening of danger of infection which this involves will be of great social benefit, while the care given to the individual patients will be better and more humane than they can receive in their homes. Both institutions are needed. It is to be hoped that by the time they are in actual operation some effective plan may be devised for sending to each institution the particular patients who most need its particular facilities, and even for such transfers from the one institution to the other as the progress in either direction may make advisable. The notable fact which is recorded with pride and satisfaction and with hearty congratulations to Commissioners Darlington and Tully, is that New York is to have increased provision of both kinds, a hospital favorably located within the city, and a sanatorium favorably located in the mountains. The tuberculosis movement is assuredly making substantial progress.

New York Academy of Medicine.—The following meetings will be held: Section on Ophthalmology—Monday evening, November 20, at 8.15 o'clock: (1) Presentation of Cases: Four cases of squint successfully operated on by double advancement of exterior, by H. W. Wootton, M.D.; (2) Papers: (*a*) "Exophthalmic Conjunctivitis," by Chas. J. Kipp, M.D.; (*b*) "Intraocular Irrigation, its Advantages and Teachings," by J. A. Lippincott, M.D., of Pittsburg; discussion by Drs. H. Knapp, S. B. St. John, of Hartford, P. A. Callan, T. R. Pooley, F. M. Wilson and others; (*c*) "On Conjugate Paralysis with Exhibit of Case," by J. H. Claiborne, M.D.

Section on Laryngology—Wednesday evening, November 22, at 8.15 o'clock: (1) Presentation of cases: Destruction and cicatrices of the pharynx and epiglottis of a non-specific nature, by L. M. Hurd, M.D.; (2) Papers: (*a*) "Specific Empyema of the Ethmoidal and Antral Cavities, with the Report of Four Cases," by Joseph H. Abraham, M.D.; (*b*) "Report of (a) Cyst of the Pharyngeal Tonsil, and (b) Growth of Bone in the Tonsil," by Wm. W. Carter, M.D.; (3) Presentation of Specimens and New Instruments: Forceps and knife for use in the submucous septal operation, by John McCoy, M.D.

Section on Obstetrics and Gynecology—Thursday evening, November 23, at 8.15 o'clock: (1) Presentation of specimens: (*a*) Fibro-myomatous uteri, by H. J. Boldt, M.D.; (*b*) specimen illustrating pan hystero-colpectomy, by Ralph Waldo, M.D.; (*c*) adeno-carcinoma of uterus, ovaries, omentum and liver, with gall-stones encysted in base of liver, by C. C. Sichel, M.D.; (2) Paper: "The Treatment of Abortion," by H. J. Boldt, M.D.; discussion by Drs. Cragin, Edgar, Von Ramdohr and others.

Section on Medicine—Tuesday evening, November 21, at 8.15 o'clock: (1) Presentation of cases and specimens; (2) clinical reports: (*a*) carcinoma of the pancreas with diabetic complications, by Lewis A. Conner, M.D.; (*b*) a case of relapsing fever, by Robert J. Carlisle, M.D.; (*c*) a case of typhoid fever, complicated by mesenteric thrombosis with symptoms simulating perforation, by Wm. L. Baner, M.D.; (3) Papers: (*a*) "Obstruction of the Pylorus," by Robert H. Halsey, M.D.; discussion opened by Dr. Edward Quintard; (*b*) "A Clinical Study of the Grocco Triangle," by Austin W. Hollis, M.D.; discussion by Drs. Lewis A. Conner, H. S. Patterson, J. E. Traub and others.

Section on Surgery—Friday evening, December 1, at 8 o'clock: Papers: (*a*) "A New Method of Excision of the Knee, without Opening the Joint—illustrated by the lantern," by Carleton P. Flint, M.D.; (*b*) "Hand Protection in Roentgen Praxis," by Henry G. Piffard, M.D.

PHILADELPHIA

Information Wanted as to the Practical Lives of the Blind.—Dr. George M. Gould, 1722 Walnut street, Philadelphia, will be grateful for any trustworthy information as to the methods which have been devised by the blind in overcoming their disability or in gaining a livelihood. Accounts of such lives, anecdotes, references to literature, etc., will be appreciated.

Dies at Railroad Station.—Dr. Andrew Lindsey, of Bryn Mawr, having come to Ardmore to attend a lodge meeting, fell unconscious and died at the railroad station just as he was about to take a train for his home. He was a graduate of the Jefferson Medical College and had been practising at Bryn Mawr since 1871 until four years ago when he retired; he was seventy-six years old. For the last few days he had been complaining of vertigo.

Eminent Neurologist Visits the City.—Dr. Purves Stewart, a noted neurologist of England, spent several days in the city where he attended clinics and delivered lectures. He gave a clinic at the University of Pennsylvania Hospital to the senior students. The material was supplied from the clinics of Drs. Mills, Spiller and Frazier; it consisted chiefly of illustrations of nerve injuries and operations on nerves. Dr. John H. Musser and Dr. Alfred Stengel and other members of the faculty were present. Dr. John H. Musser entertained Dr. Stewart at luncheon at the Rittenhouse Club. From this city Dr. Stewart went to Baltimore where he will visit the Johns Hopkins Hospital.

The Section on General Medicine of the College of Physicians of Philadelphia.—The regular meeting of this society was held Nov. 13, 1905. The first paper was read by Dr. Frank Billings, of Chicago. His article was entitled "The Medical versus the Surgical Treatment of Diseases of the Stomach." In the form of discussion, Dr. George Brewer, of New York, read a paper on "The Indications of Surgical Inter-

vention in Diseases of the Stomach in the Absence of Smptoms of Perforation or Hemorrhage." Dr. John H. Musser made some remarks on "The Relation of Carcinoma to Ulcer of the Stomach, Especially as Influencing the Treatment of the Ulcer." Dr. John B. Deaver, spoke of the "Final Results of Operations Such as Gastro-enterostomy, Pyloroplasty, etc., in the Treatment of Diseases of the Stomach." Dr. J. Dutton Steele, spoke of "Certain Therapeutic Indications Based Upon the Presence of Occult Blood in the Gastric Contents and in the Feces."

Donation Day.—At the Philadelphia Home for Incurables, November 8 was set apart as donation day. The Board of Managers took a greater interest in the affair this year because a large debt on the new cancer hospital is to be met, repairs on the main building are necessary, a sun parlor and an assembly room are needed for the comfort of the patients. The last annual report showed that the home contained 151 patients, 26 in the children's ward, 90 in the main building and 35 in the cancer annex; there are 300 on the waiting-list. A day for a similar purpose was observed at the Children's Homeopathic Hospital. The number of patients treated in this institution during the year just ended exceeded by far the number treated heretofore; consequently, the friends of the institution are taking a greater interest in this character of work. In order to raise the money to complete the addition to be made the Woman's Medical College of Pennsylvania, a bazar was held in the hospital of that institution Friday and Saturday evenings. Attending the college are several Hindoo girls, one Japanese and one Philippine girl; these girls were dressed in their native costumes and served refreshments from their respective booths; there were also Turkish and Italian booths.

Drug Trust Prosecuted.—In 1900 the Proprietors' Association, Inc., which includes all the manufactures of patent medicine, the Wholesalers' Association and the National Association of Retail Druggists consolidated. By means of this combination the prices of drugs were fixed to be sold at a certain rate throughout the entire United States, and anyone found cutting the fixed price was boycotted. Not long ago G. A. Loder, retail druggist at Sixteenth and Chestnut streets, sold a patent medicine, fixed at 89 cents by the trust, for 69 cents. So soon as this combination heard of this matter, the retail druggist was at once boycotted. As a result he found it very difficult to get drugs, very often he found it impossible to fill prescriptions sent to him. The state of affairs became so embarrassing that he brought suit against this criminal combination. The case is now before the jury. In opening the case before this body, Mr. Henry J. Scott said that as a result of the consolidation the trust increased the price on drugs to the extent of $40,000,000, every cent of which had to be paid by the consumer. He proposes to show that the procedure is a direct violation of the anti-trust law drawn up by Sherman and passed by Congress in 1900. More than 2,500 pages of depositions have been taken in various cities wherein the alleged trust has its headquarters.

Pathological Society of Philadelphia.—The regular meeting of this society was held Nov. 9, 1905. According to the method adopted recently the card specimens were shown before the papers were read, so that the members may have the opportunity of examining them at any time during the evening. Dr. Alburger showed a parasitic fibroid of the omentum. Dr. B. Franklin Royer (by invitation) showed a series of brains and spinal cords illustrating the morbid anatomy of cerebrospinal meningitis. Dr. D. J. McCarthy exhibited card specimens illustrating tuberculous meningitis. Dr. Levison showed a brain exhibiting hemorrhagic pachymeningitis. Dr. B. Franklin Stahl and Dr. John Funke showed a brain and cord illustrating a penumococcal meningitis. Dr. John Funke exhibited a fresh specimen showing a hypernephroma involving both adrenals, both pleuræ and the left lung. Dr. William Pickett read a paper on "Syringomyelia, with a Report of Two Cases." It was discussed by Dr. Spiller. Dr. William G. Spiller then read a paper on "Meningomyelitis with Intense Swelling of the Spinal Cord and of the Roots of the Cauda Equina." This paper was discussed by Dr. Coplin. The next paper was read by Dr. G. Canby Robinson, "Bacteriological Findings in the Fifteen Cases of Epidemic Cerebrospinal Meningitis, with Especial Reference to the Isolation of the Meningococcus from the Conjunctiva and from the Circulating Blood." The paper was discussed by Drs. Royer, Holmes, Rosenberger and Coplin. Dr. Allen J. Smith spoke of "The Process Involved in, and the Significance of, the Invasive Stage of Febrile Affections."

CHICAGO.

Chicago Union Hospital.—This corporation has bought the northwest corner of Wellington Avenue and Dayton Street, 90 by 264 feet, for $23,000.

Bequests.—According to the will of Mr. James C. King, who died recently in this city, $90,000 has been bequeathed to eight Chicago charitable institutions, and to a hospital in Pasadena, Cal. The Chicago Home for Incurables receives $10,000; the Chicago Orphan Asylum, $10,000; Home for Crippled Children, $10,000; Presbyterian Hospital, $10,000; Hahnemann Hospital, $10,000; Old Peoples' Home, $10,000, and Foundlings' Home, $10,000. In addition to the foregoing a second $10,000 was left to the Presbyterian Hospital as an endowment for a free room for such patients as may require a private room and are unable to pay for it.

Appointments at Insane Hospitals.—Dr. Edward A. Foley has sent in his resignation as first assistant physician of the Northern Illinois Hospital for the Insane, Elgin. Dr. Edward F. Leonard, Chicago, has received the appointment of physician to the Illinois Central Hospital for the Insane at Jacksonville, vice Dr. Louis H. Clampit, Jacksonville. Dr. Harry C. Hardt has succceeded Dr. Elmer L. Crouch, Mount Vernon, as assistant physician of this institution. At the Hospital for the Incurable Insane, Bartonville, Dr. Arthur K. Stangland, Chicago, has been appointed senior assistant physician, vice Dr. A. T. Burnham. Dr. I. O. Paul, Winnebago, who was appointed interne at the Northern Illinois Hospital for the Insane, Elgin, has declined the appointment.

Diphtheria at Taylorville, Illinois.—The Secretary of the Taylorville Board of Health (Dr. Guy L. Armstrong) states that there has existed in Taylorville for several weeks a mild epidemic of diphtheria, probably one hundred or more cases, about twenty-five of which are now under quarantine. Being mild and thus far with no fatalities, the epidemic is being given too little consideration generally, many doubting the diagnosis, although it has been demonstrated in all but one instance in which cultures have been made. Until the last few days it has been confined chiefly to one community, and the children attending one school, which has been closed for some time. On account of the development recently of several cases in different parts of the city in children attending the various schools, all

the ward schools and the public library have been ordered closed. The Humphrey schoolhouse, near Barrington, has been closed on account of diphtheria. Richwoods Township is suffering from an epidemic of diphtheria which may necessitate the closing of the public school.

GENERAL.

Johns Hopkins University.—Enrolment figures at the Johns Hopkins Medical School show a total attendance of 293. The first year class consists of 58, a smaller number than any of the higher classes. In the first year class are seven women, a larger number than any previous class has contained. A new laboratory to be devoted to experimental surgery upon animals will soon be ready for use. Another new feature is an official medical adviser, who will render professional service free of charge to all students of the university.

Mosquitoes Carried Fever.—That yellow fever was brought to Havana by mosquitoes from New Orleans is the theory generally accepted in Havana. It has been learned that some mosquitoes made the journey from New Orleans in several cases of electrical apparatus recently brought here. These cases were assigned to a firm having offices in the Payeret Theater Building. They were taken there and opened, and it was noticed there some mosquitoes were liberated. The first person to be attacked by yellow fever was a member of an opera company playing at the Payeret Theater. Subsequently the disease attacked an electrician employed in the same building. All of the other cases have originated in this vicinity, and it is believed that the mosquitoes from the cases brought from New Orleans carried the infection. The case of H. V. Chilvers, the New Orleans electrician, who was taken to the Las Animas Fever Hospital Saturday, was to-day diagnosed as yellow fever. The Spaniard who was stricken Saturday and isolated in the Clerks' Hospital died there to-night. There are now two cases of yellow fever at the Las Animas Hospital and one suspect, a Spanish woman, was placed under observation.

International Medical Congress.—The committee in charge of the International Medical Congress, which will be held in Lisbon from April 19 to 26, 1906, has written asking for the contribution of papers on the following medicolegal subjects, and saying that as yet no titles of communication touching on any of these subjects have been received from this country: The signs of virginity and of defloration in medicolegal relations; hand-marks and finger-prints, their medicolegal importance; the medicolegal importance of the carunculae myrtiformes; the mechanism of death by hanging; the value of bacteriologic examination of vulvovaginal discharges in the determination of venereal contagion; the signs of death by drowning; ecchymoses in legal medicine; spontaneous and criminal abortions from a medicolegal point of view; medicolegal investigation of blood stains; the relations between the seat of cerebral contusions and the point of application of the agent which produced them; epilepsy in legal medicine; the induction of abortion, when is it permissible; the value of legal medicine in the study of criminal law; the best legislation for the protection of the "medical secret" (the obligation imposed upon physicians to treat as inviolable all information concerning patients obtained while in the discharge of their professional duties); the effects of the civil and penal law toward the newborn living infant; distinction between the natural openings in the hymen and tears of this membrane; criminal vulvar copulation; organization of medicolegal services. If any of the readers of this communication intend to take part in the discussions of this section of the congress, or to prepare papers for it on any of the subjects mentioned, or on any other subject in medicine or surgery, he should inform the secretary of the American Committee, Ramon Guiteras, secretary, American National Committee, 75 West Fifty-fifth Street, New York.

Superstitions in Medicine.—It was firmly believed by the Greeks so early as the sixth century B.C. that he who slept in a temple would be surely cured of any physical disorder. Dr. Hugo Magnus, in his new book, "Superstition in Medicine," says that a tablet found in the temple of Æsculapius at Epidaurus tells us that a blind man by the name of Hermon, a native of Thases, had recovered his sight by sleeping in the Epidaurean Temple of Æsculapius. However, it appears that this man Hermon had been a miserable wretch, for he disappeared without having expressed his thanks in hard cash. Naturally such ingratitude provoked the god, and summarily he blinded the thankless individual again. It required a second temple sleep before the god condescended to become helpful once more. But our tablet does not mention anything about the amount of the remuneration paid by our friend Hermon who had been twice cured of blindness, neither is this at all necessary. The miraculous tablet, even without stating the price, doubtless made sufficient impression upon the minds even of the most parsimonious of future patients. He further mentions many strange cures. Two of the most popular remedies of early times were the powders obtained from scraping the tombstones of saints (the powder being placed in wine or water) and the charred wicks of wax candles that had been burned in a church. Let us listen to what Gregory of Tours has reported concerning the medicinal virtues of tombstone potions. He says, "Oh, indescribable mixture, incomparable elixir, antidote beyond all praise." Celestial purgative (if I may be permitted to use the expression) which throws into the shade every medicinal prescription, which surpasses in fragrance every earthly aroma, and is more powerful than all essences; which purges the body like the juice of scammony, clears the lung like hyssop and the head like sneezewort; which not only cures the ailing limbs, but also, and this is much more valuable, washes off the stains from the conscience! This wick was pulverized, and in this manner a very powerful curative powder was obtained, which, when taken, acted in a manner similar to that of the watery or vinous tombstone infusion. That the therapeutic value of prayer is one of the oldest beliefs, is also shown by Dr. Hugo Magnus. The early fathers of the Church sought to increase this therapeutic power by means of various accessories and aids, which even now survive in this twentieth century. "Thus the Gospel was placed upon the affected part of the body, or clothing of a particularly pious man was spread over the patient. It appears that the sudarium and the coat of the Apostle Paul were held to possess such healing power, and were, therefore, frequently employed as instruments of healing."

Hospital Interne (Male) Examination for Panama Canal, November 29 and 30, 1905.—The United States Civil Service Commission announces an examination on November 29 and 30, 1905, at the places mentioned in the accompanying list, to secure eligibles from which to make certification to fill vacancies in the position of hospital interne under the Isthmian Canal Commission on the Isthmus of Panama. Two days will be required for this examination. Men only will be admitted to this examination. Each applicant for the Isthmian Canal Service will be required to submit

to the examiner, on the day he is examined, a photograph of himself, taken within three years, which will be filed with his examination papers, as a means of identification in case he receives appointment. An unmounted photograph is preferred. The date, place, and kind of examination, the examination number, the competitor's name, and the year in which the photograph was taken should be indicated on the photograph. Full information concerning transportation to the Isthmus, conditions of employment, etc., is contained in Form 1417 herewith. Age limit, twenty to thirty years on the date of the examination; salary, $100 per month, with quarters, but without board and washing. Only graduates of reputable medical schools having a three years' course will be admitted to this examination. The examination will consist of the subjects mentioned below, with the relative weights indicated: (1) Letter-writing (the subject-matter on a topic relative to the practice of medicine), 5; (2) anatomy and physiology (general questions on anatomy and physiology, and histologic or minute anatomy), 15; (3) chemistry, materia medica, and therapeutics (elementary questions in inorganic and organic chemistry; the physiological action and therapeutic uses and doses of drugs), 10; (4) surgery and surgical pathology (general surgery, surgical diagnosis; the pathology of surgical diseases), 20; (5) general pathology and practice (the symptomology, etiology, diagnosis, pathology, and treatment of disease), 25; (6) bacteriology and hygiene (bacteriologic methods, especially those relating to diagnosis; the application of hygienic methods and phrophylaxis and treatment), 10; (7) obstetrics and gynecology (the general practice of obstetrics; diseases of women, their pathology, diagnosis, symptoms, and treatment, medical and surgical), 15. Total, 100. This examination is open to all male citizens of the United States and also to aliens who comply with the requirements, provided that aliens appointed for service on the Isthmus of Panama shall not be eligible for appointment or transfer to any other branch of the public service. The county officer's certificate in the application form need not be executed. No person will be appointed for service on the Isthmus who is not physically sound and in good health. Persons appointed to positions under the Isthmian Canal Commission will be expected to proceed promptly to the Isthmus. Persons examined for positions under that commission will not be eligible, as the result of such examination, to positions in the United States or Philippine services. Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the accompanying list, for application Form 1312. The medical certificate in Form 1312 must be filled in by a reputable practising physician. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application. As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will, therefore, arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

Odell and Insurance Graft.—Now that the Hughes Investigating Committee is unwinding the slimy evil of our one-time executive the contentions of the medical press anent the lunacy commission affairs are more than justified.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

THE PEREGRINATIONS OF OSLER—DISEASE AS A GOOD GIFT TO MAN—LONDON LUNATIC ASYLUMS—A NEW POST-GRADUATE SCHOOL—COMPULSORY EDUCATION AND INFANT MORTALITY—MOVABLE KIDNEY AND NERVOUS DISEASE.

LONDON, November 4, 1905.

DR. OSLER began his career at Oxford by having all the students who are members of the medical faculty individually presented to their new professor. There are only some sixty of them, for the ancient University on the Isle jealously guards her portals with academic requirements that comparatively few candidates for admission are able to satisfy. Moreover, the degree of Bachelor of Medicine cannot be got in less than six years; most students, indeed, take seven. Two or three years further are required for the M.D. This makes the Oxford degree a very costly luxury. The Radcliffe Infirmary (so called after its founder, John Radcliffe, who told the dropsical William the Second that he would not have His Majesty's two legs for his three kingdoms) has only 150 beds, and clinical teaching has hitherto been, like Horace's worship of the gods, scanty and infrequent. The late Regius Professor, although he was nominally senior physician to the Infirmary, cared for nothing but physiology; his clinical teaching, had he attempted it, would have been that of forty years ago. Osler intends, I hear, to breathe life into the teaching of medicine; if he does so, it is likely that he will remove from Oxford the reproach of being "a lost medical school." In the meantime he is in great demand as a speaker at all kinds of medical gatherings. For the last few weeks he has been walking up and down on the earth, delivering addresses to students, medical and dental, and, of course, perorating on Sir Thomas Browne. The tercentenary of the birth of that worthy was celebrated at Norwich on October 19. For many years admirers of the *Religio Medici* had been collecting funds for a suitable memorial. Money came in but slowly, and, strange as it may appear, the movement was opposed by an Irish expert in lunacy on the ground that Browne's views on witchcraft were not up to the standard of present-day enlightenment. Nevertheless, a statue has been erected, and its unveiling was made the occasion for the usual distressing exhibition of the average Briton's utter lack of oratorial faculty. In that line Osler shone among the speakers as a bright particular star. The statue is intended to represent Browne contemplating a fragment of a burial urn; to my profane eyes he looks rather as if he were scratching his head over a broken domestic ornament, in perplexity as to an explanation which may avert the wrath of an esthetic wife.

Another itinerant medical orator who has lately bulked large on public platforms is Sir Frederick Treves. That distinguished surgeon appears to be cultivating a talent for paradox which may in time make him a dangerous rival to George Bernard Shaw. Addressing the Philosophical Institute at Edinburgh he treated his solemn Caledonian audience to an unexpected display of fireworks on the somber subject of disease. He began by admitting that the popular notion of disease was that it was a calamity, an enemy to mankind. This, according to the new medical learning, is all wrong. So far from being an evil, we are told that disease is one of the good gifts to man, for its motive is benevolent and protective; indeed, if it were not for disease, the human race would soon be extinct. The lecturer

illustrated his text by reference to inflammation following a wound which he described as a process of cure to be imitated rather than hindered. Peritonitis, which had always been spoken of as the operating surgeon's deadliest enemy, was in reality his best friend. Thanks to it, the mortality from appendicitis was low, whereas without "that much-abused ally" peritonitis it would invariably slay its victim. Another instance of the beneficence of disease was a common cold; the symptoms of which so far from being "purposeless, profitless and wantonly distressful," were really manifestations of the process of cure, without which a cold might be a fatal malady. Malaria, plague and tuberculosis were also represented as examples of the merciful forethought of nature or, in the words of the orator, "expressions of an unflagging effort on the part of the body to oppose the progress of an invading bacterium." Treves was fain to confess that his vindication of the beneficent character of disease could not at present be applied to cancer and other disorders, of which nothing was known; but he hinted that when their secret was disclosed, they would be found to confirm his optimistic theory. Leaving paradox toward the end of his discourse, Treves threw out a suggestion as to the prevention of cancer which sounds plausible enough to make it worth a trial. It may not be new, but I give it for what it may be worth, as far as possible in his own words. He said that if he were compelled to add to the list of surmises as to the possible lines on which a remedy for cancer might be expected, he would point out that during the period of development in childhood there were certain glands in an active state which would appear in some way to control, limit and modify a process of production which might without such control run riot. It was noteworthy that one such gland—the thymus—wasted and vanished after the period of greatest bodily activity was over, and it was impossible not to wonder whether the introduction of the active principle of such a gland in a case of cancer would exert an influence late in life, which it seemed to be intended to exert when growth was alert in the young. Thymus extract had been largely tried in medicine, but it did not appear that any active principle had been isolated from the gland and used.

From the annual report of the Asylums Committee of the London County Council for the year ending March 31 last, which has just been issued, it appears that the increase of lunacy in London during the past year was considerably less than in the preceding year, the number being 704 as against 996. The steady growth of insanity has not, however, been broken. On January 1 last, there was a total number of 24,652 pauper lunatics against 23,948 in 1904. The need for more asylum accommodation is strongly emphasized in the report. The number of patients for whom the Council had to provide accommodation was 18,168, while the number of beds in the asylums at its disposal was only 17,060. The result was that in March last, 898 patients were boarded out in other country asylums and institutions at an increased cost to the rate-payers. Works to provide accommodation at existing asylums for 2,613 additional patients are in progress, and a scheme is under consideration for erecting a new asylum to provide beds for 2,000 more. Vast sums of money have also been expended in ordinary improvements and repairs in the existing asylums. And the pity of it is that, as far as the unhappy patients are concerned, a large part of the money spent by the London County Council on asylums is thrown away. In these huge caravanseries persons suffering from every variety of mental disease are herded together, and acute cases in which proper treatment would probably bring about a cure degenerate under the influence of their environment into hopeless chronic dementia. What is urgently needed is a hospital in which incipient cases can be kept under observation and acute cases treated by men of special knowledge. At present the asylums are to a large extent staffed by men who are without such knowledge and who are not encouraged to acquire it. Over and over again these reforms have been pressed on the attention of the Council, but that body prefers to build palatial asylums which, it is—perhaps uncharitably—believed, are intended to dazzle the eyes of the rate-paying public rather than to provide more effective treatment for the insane.

As medical science advances the need of post-graduate instruction is felt more and more by general practitioners. Notwithstanding the existence of two or three post-graduate schools, the provision of such instruction in London is still inadequate. I am not surprised, therefore, to learn that the establishment of another is in contemplation. The old "Dreadnought" ship-hospital was long ago converted into the Seamen's Hospital at Greenwich, a well-equipped institution with 250 beds. This hospital is under the control of the Seamen's Society, a public-spirited and enlightened body which has already placed the British Empire under an incalculable obligation by its management of the London School of Tropical Medicine. The hospital of that school is a branch of the Seamen's Hospital. It has already trained nearly six hundred medical men and women for tropical practice and research. It is now felt that the large amount of clinical material supplied by the Seamen's Hospital might with the greatest advantage be used for educational purposes. Owing to the fact that a very large proportion of the inmates are foreign sailors, there are probably more unclaimed bodies at the "Dreadnought" than at any other hospital in London. Hence it possesses peculiar advantages for the teaching of operative surgery. It is proposed to appoint a medical and surgical staff composed of men in the front rank of the profession whose names will serve to attract practitioners anxious to furbish up their rusty knowledge. Teaching of the best kind will be provided in all branches of the art of healing. An out-patient department is to be opened, and as the hospital is situated in the midst of a very poor quarter, this will be a boon from the humanitarian as well as the educational point of view. Among the men whose names are mentioned as likely to be appointed are Sir Dyce Duckworth, Mayo Robson and Malcolm Morris. If after a time the experiment appears likely to be successful, a separate building will be provided for the nurses; this will give 40 more beds to the hospital. It is hoped that a beginning may be made at the new year.

In an address delivered before the new York Medical Society the other day, Sir William Church, ex-President of the London College of Physicians, denounced compulsory education as the source of much evil not only to the health of the children who are driven to the schools, but to the physical welfare of future generations. He said that when compulsory education became the law of the land, our educational authorities entirely overlooked the dependence of the mind on the body, and that the education of the body was of equal or even greater importance than that of the mind for the welfare of the nation. While he admitted that compulsory education had been of inestimable benefit on the whole, it was equally true that on certain portions of the population it had been a factor in producing a change in their habits which had a prejudicial effect on their domestic life, and consequently on their health. The most se-

rious problem of the present day to sanitarians was the high rate of infant mortality. At first sight there appeared to be no connection between education and infant mortality, but he had no doubt there was. Formerly the elder girls in a family had a thorough training by their mothers in the management of their home, such as it might be, and in the care of the younger children. Now they are at school until fourteen, and when they leave have at once to go to work, often in factories. They marry, knowing nothing of how to make a comfortable home or how to make the most of their means, either in the way of food or household necessaries, and are completely ignorant of how to attend the baby which commonly follows. The Board of Education made, in his opinion, a serious mistake when it came to the conclusion that children of three and upward could not be reasonably refused admission to school. It was no doubt a boon to the mothers to have their infants taken care of for part of the day, but he questioned very much if it was good either for the home or for the children, and he believed that infant classes, as hitherto carried on, had a benumbing effect on the mental activity of children. He was thankful to understand that the Board now left it in the hands of the county council to decide how far children below the age should be received. If they were to raise the standard of the lowest classes they must interest and instruct them in the essentials of decent and healthy life. "Neither free breakfasts nor State employment can do this, for unquestionably a large part of their present sad condition arises from their own improvidence and ignorance."

In a book entitled "Movable Kidney," which has just appeared, Dr. C. W. Suckling, formerly Professor of Medicine in the Birmingham School of Medicine, claims to have proved that movable kidney is the real cause of much of the insanity, mental failure and other nervous disorders so prevalent at the present day. He states that he has found that condition in about 40 per cent. of women suffering from nervous ailments; in men, similarly afflicted, the proportion given is 6 or 7 per cent. He affirms that when the movable kidney has been kept in place, either by belts in mild cases, or by surgical operation in severe cases, the effect on the nervous state has been eminently satisfactory. Dr. Suckling holds that in many cases, in which an operation has been done for appendicitis, the real trouble has been movable kidney. A prolapsed right kidney, he says, may not only cause symptoms of appendicitis, but may actually produce the disease by interfering with the circulation of the appendix. The phenomena caused by movable kidney may simulate gallstone, renal colic and intestinal obstruction; in all cases of indigestion the condition should be looked for. He says: "It has been painful to me to meet with many elderly women suffering from insomnia, headache, depression, dyspepsia, neuralgia and constant ill-health, which might have been prevented years ago if the condition of the kidneys had been discovered. It is a common thing to meet with confirmed invalids of many years' standing, whose illness has been due to mobile kidney which has never been discovered, although many physicians and surgeons have been called in." He adds that many women have committed suicide, or have been sent to asylums, who might have been saved had the condition of the kidneys been discovered. In his own practice he can recall four cases of suicide. One patient while waiting for admission into a hospital drowned herself; three others whose parents would not allow them to be operated upon, or who had been frightened by friends about the operation, also drowned themselves. Another patient had to be removed to an asylum because Dr. Suckling was not supported by other physicians in his advice. He sums up his teaching on this point in the following statement: "From a large and varied experience of dropped kidney cases, and realizing the astounding effects upon the mental condition, I say that no man or woman should be sent to an asylum today without careful and repeated examination for 'dropped kidneys.'" Dr. Suckling thinks the frequency of movable kidney in women is due to the excessive athleticism which is one of the notes of the girl of the period. His theory is suggestive; it is based on a large experience, and he quotes in confirmation of his statements the names of several well-known surgeons who have operated at his request on cases of movable kidney. Unluckily, the book has somehow been made the subject of a newspaper "boom," and thus a prejudice against it has been excited among the many members of our dignified profession whose works escape this undesirable publicity.

PERUNITIS (PERUNA-ITIS) OR HARTMANITIS?[1]

To the Editor of the MEDICAL NEWS:

DEAR SIR: Last year I was called to see a woman just past the meridian of life, whom I found suffering from multiple neuritis. The nerves of the lower extremities, the upper extremities and some of the nerves of the head were successively involved. There was no history nor evidence of exposure to cold, rheumatism, nor exhaustion to act as etiological factors. Finally, after ruling out other causes of the disease, it became evident that the patient must have been taking alcohol in some form, notwithstanding the fact that she was a refined lady and an earnest advocate of temperance, who would not knowingly indulge in any form of alcoholic beverage. I asked her what she had been drinking. She was shocked. She disclaimed being a tippler either in public or private. I asked her what medicine she had been taking. She stated that she had not been under the care of a physician. Further examination into the history of the case revealed the fact that the patient had been using "Peruna" for a long time, taking the nostrum under all sorts of pretexts. After explaining the case to the patient, she readily consented to stop the "Peruna" cocktails. As stated, first one nerve then another was attacked. Finally, after about three months' treatment with the usual remedies for multiple neuritis, the case apparently removed.[2]

The case is interesting from a nosological standpoint. When practicable, it is customary in medicine to seek an etiological classification of diseases. Since the only apparent cause of the disease in this case was "Peruna," would it be proper to call it peruna-itis or perunitis? Or should we honor the discoverer or concoctor of the nostrum and name it Hartmanitis?

GEORGE E. MALSBARY, M.D.
Asst. to the Chair of Practice, Med. Coll. of Ohio,
Med. Dept. Univ. of Cincinnati.
Cincinnati, Ohio, November 17, 1905.

Obituary.—Dr. CHARLES H. LANGDON, who had for forty-eight years been a member of the medical staff of the Hudson River State Hospital, near Poughkeepsie, died at his cottage at the institution last week. Death was caused by exhaustion following a second operation for appendicitis, which was performed a few days before his death. The first operation was performed on October 2.

1 A case reported to the Cincinnati Academy of Medicine, October 23, 1905.

2 The case has since relapsed, as is so common in this disease, showing that the recovery was not complete.

SOCIETY PROCEEDINGS.

INTERNATIONAL CONGRESS ON TUBERCULOSIS.

The attitude of the International Congress on Tuberculosis, recently held at Paris, is of the deepest interest. In the First Section, October 3, discussion was held upon the

Relations between Human and Animal Tuberculosis.—The majority were clearly in favor of regarding the bovine variety of real danger to the human race, especially to children.

Dr. S. Arloing, of Lyons, pointed out that hitherto most observers had confined their attention to the difference existing between the bacilli found in the various species of living creatures, but if instead their similarity be noted, then it would be found that all belonged to the same species and possessed no well-marked differences. Slight variations are known to occur in the morphology of the bacilli of human tuberculosis.

Dr. H. Kossel, of Giessen, contended that two distinct types of tubercle bacilli, bovine and human, could be distinguished. Tuberculous lesions could, however, be produced in man by bacilli of the bovine type, but this mode of contracting the disease was relatively rare.

Dr. M. P. Ravenel also distinguished two types, but believed there was a more striking difference in virulence than in cultural, morphological and tinctorial characters, the human type having a greater pathogenic power. From the evidence at hand the disease in cattle must be regarded as the source of a certain part of human tuberculosis.

The Protection of Children Belonging to Tuberculous Families—Was the next topic discussed.

Dr. A. B. Marfan asserted that the ages most dangerous to children were between one and six years. Prophylaxis should be considered from two standpoints; children who actually lived with tuberculous people and children who harbored the predisposition. In the former class the precautionary measures are the same as those adopted for the prevention of the disease in general. In the latter class less stringent measures suffice. All milk should be thoroughly boiled; playing in public places avoided; hands and nails repeatedly cleansed; and the occupancy of any home or room in which a consumptive has previously resided absolutely precluded. These measures should be more particularly applied to children convalescing from measles or whooping-cough and to those subject of enlarged bronchial or cervicle glands. The child should live in the open air as much as possible, overwork should be avoided, the appetite encouraged, and physical exercise energetically practised.

Dr. Heubner, of Berlin, insisted on the importance of educating nurses and midwives as to the protective measures which should be adopted in regard to children born of a tuberculous mother, and likewise laid stress upon the necessity for legislative measures which should be adopted for the prevention of tuberculosis.

Prevention of Tuberculosis in Schools.—On October 4, the discussion was continued under this topic. Dr. H. Mery pointed out that one of the chief dangers arose from the fact that pulmonary tuberculosis in children frequently remained undetected, and that therefore the general precautions against tuberculosis in all schools should be rigorously enforced.

Professor F. Ganghofner, of Prague, drew attention to the importance of distinguishing between the child and its surroundings, the latter deserving especial attention. He also emphasized the frequency of latent tuberculosis in children, and produced statistics to prove his contentions. Amongst 460 children under one year of age latent tuberculosis was found in 7.1 per cent.; amongst 536 between one and two years of age, 16 per cent.; amongst 476 between two and seven years of age, 24.5 per cent.; amongst 271 between four and six years of age, 26.9 per cent.; and amongst 123 between six and eight years of age, 26.8 per cent.

The Value of Sanatorium Treatment.—Dr. Arthur Newsholme was selected to send to the Fourth Section a statistical report intended to show the beneficial result of institutional treatment. The figures tend at times to confuse and to contradict. Yet in the main, they undoubtedly show a marked improvement in the general situation. In England since 1861 the death rate from pulmonary tuberculosis has declined 38 per cent.; in Scotland, 42 per cent.; and in Massachusetts, 56 per cent. It is to the workhouse infirmaries, and not to the hospitals, that we are indebted for separating the tuberculous patient from the rest of the population, and thus preventing the spread of the disease. It is very doubtful if sanatoriums have had any appreciable effect, since the disproportion of beds to tuberculous population is too great. Dr. Newsholme does not deal with the problem of sanatoriums, but confines his observations to the larger field, the segregation of incurable cases.

(To be Continued.)

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held October 9, 1905.

The President, T. E. Satterthwaite, M.D., in the Chair.

SYMPOSIUM ON FOODS AND NUTRITION.

Introductory.—Prof. R. N. Chittenden, of Yale University, said he was glad of the opportunity of making a plea for the broader and more thorough study, along scientific lines, of the subject of nutrition. As medical writers state, with truth, that the majority of diseases are due to disturbances of nutrition, to perversions of metabolism, we certainly need as full and complete knowledge as is possible to obtain of all the varied processes of nutrition, that we may be able to correct those deviations from the normal which we characterize as disease. Observation points to the widespread use of methods and treatment which tend to temporary alleviation, rather than the radical cure of disease by bringing back the body to a normal state of nutrition. Prevention is better than cure, and we may well query whether with a proper understanding of the true laws of nutrition, of the real needs of the body for food, with a clear conception of the processes of digestion and excretion, we should not be in better condition to combat disease than we now are. There is still undiscovered territory, and the opinion may be ventured that when we hold in our grasp the key to an understanding of normal nutrition many forms of disease will be checked and held in abeyance through intelligent application of scientific knowledge. Even at the present day the physiologist and the practising physician show a noticeable lack of agreement as to what constitute a proper diet under

normal conditions, to say nothing of the requirements in cases of disease. Who can tell with any degree of precision the exact effects of proteid food upon the functions of the liver and kidneys, the effect of an accumulation of nitrogenous waste-products on the system, or to the effect of different types and admixtures of foods on the growth of the young? Prof. Chittenden expressed the opinion that two at least of the dread diseases of mankind, cancer and tuberculosis, are probably the result of a disturbance of nutrition in which at least the predisposing causes are to be found in excess of nutritive material in general in the blood, or to a disturbance in the balance of nutritive materials in the circulating medium, or possibly in the tissues themselves. In tuberculosis, he said, while all recognized the importance of fresh air, there appeared to be much uncertainty as to the character and extent of the diet best adapted for combating this disease. There was surely, he thought, a reaction going on against the altogether too prevalent fashion of overfeeding in it. In conclusion he said that his own observations had led him to believe that there is much of value to be learned in a study of the minimal quantities of food required to maintain health and strength. The real needs of the body for food are unquestionably very much below the amount ordinarily consumed, and, this being true, one may well ask, Does not this excess of food, for which the body has no true physiological need, in the long run imperil the health of the individual, diminish the ordinary powers of resistance, and so pave the way for various forms of disturbed nutrition which we speak of as disease?

A Theory of Protein Metabolism.—This was the subject of a paper by Otto Folin, Ph.D., of the McLean Hospital, Waverley, Mass. Detailed analytical studies by him of urines rich in nitrogen and of urines containing the minimum amount of nitrogen have brought out facts which show, he believes, on the one hand that the prevailing views concerning the composition of normal human urine are erroneous, and on the other that the current theories of protein metabolism are untenable. While it is commonly supposed that the urea contains about 90 per cent. of the total nitrogen in normal urine, this is really the case only when a large amount of protein is destroyed within the body, and when the urine, in consequence, is rich in total nitrogen. When the daily protein consumption is reduced and the total nitrogen elimination diminished, the percentage of that nitrogen present as urea sinks lower and lower until it finally represents less than 60, and sometimes even less than 50 per cent. of the total nitrogen. This fact must be taken into account in the examination of pathological urines. When such urines are low in total nitrogen, the urea determination alone is very misleading. The urines may be normal, and yet may contain only 5 gms. of nitrogen and 7 gms. of urea. Since the urea nitrogen sinks more rapidly than the total nitrogen, when the daily protein katabolism is diminished, it follows that some other nitrogenous products must at the same time become relatively more and more prominent. The most notable of these is one which has received comparatively little attention, viz., kreatinin (containing about 37 per cent. of nitrogen), and yet Dr. Folin has become convinced that kreatinin is present in all urines. When the total daily protein katabolism is reduced, kreatinin not only becomes more and more prominent as a katabolism product, but the absolute amount of kreatinin eliminated is not at all affected by the diminution in the elimination of total nitrogen. The striking difference in the rôle played by urea and by kreatinin in the daily metabolism constitutes the pivotal fact upon which he has ventured to construct a somewhat new theory concerning protein metabolism. The constancy in the kreatinin elimination, as well as the constant presence of kreatin in muscle extracts, when considered in connection with the enormous fluctuations in the urea elimination and the almost complete absence of urea, or of any adequate precursor of urea, in muscle extracts, indicates, it seems to him, that these two products are the representatives of two different kinds of protein metabolism. Since the katabolism which gives rise to kreatinin appears to be for each individual a constant quantity, no matter how much or how little nitrogenous food is taken, and since its chief decomposition product is demonstrably always present in muscles and other tissues, it seems justifiable to consider this metabolism the *tissue metabolism*. On the other land, since the katabolic processes, which produce nearly all the urea, vary within such enormous limits and so directly with the supply of food protein, and since the urea is strikingly absent in the muscles, it seems fair to consider these katabolic processes as part of a more localized and specialized form of protein metabolism. This he has called the *exogenous metabolism*. The tissue metabolism represents the daily wear and tear of all the cells in all the different tissues, while the exogenous metabolism represents the specialized activities of certain definite organs, as the digestive tract and the liver. The question of the maximum protein consumption would seem to depend chiefly, if not exclusively, on the significance and importance of the exogenous metabolism. This exogenous metabolism may be regarded as only a preliminary process which has become necessary because our food products contain greater proportions of nitrogen than are necessary for the unimpaired maintenance of the normal full-grown organism. It would seem that we have at present no reason for assuming that anything like the 118 gms. of protein demanded by the standard diets is either necessary or advantageous for normal men with unimpaired digestions. On the other hand, we have no valid reason for assuming that the consumption of 118 gms. of protein is necessarily detrimental.

Distinctive Features of Animal and Vegetable Dietaries.—Prof. L. B. Mendel, of Yale Uuniversity, read a paper on this subject. The ready digestibility of the meat proteids and the consequent availability of flesh products has always been contrasted with that of the proteids in plant materials. It is undoubtedly true that a considerably larger proportion of the vegetable proteids is lost to the organism in the ordinary forms of vegetable diet. The important fact which is usually overlooked is that the vegetable proteids *per se* are, as a rule, not less digestible than those from animal sources, a statement which is quite justified by the more recent experimental investigations. The poorer utilization ordinarily recorded is attributable to the form in which the nutrients are present; in other words, to the peculiar texture of the crude material. The physician of today should be in a position to accept at their current value certain familiar fallicies which are still widely current with respect to food products. One class of these rests upon the untenable assumption that the chemical composition of a foodstuff is an adequate

index to its nutritive value. This may be essentially misleading when either proteids or fats or carbohydrates are exhibited in a form which the digestive apparatus cannot satisfactorily appropriate. Referring to breads made from the coarser grades of flour, he said it was not intended to impugn their value from the clinical standpoint or to overlook the stimulating action which the indigestible ingredients may exert upon the motor functions of the intestine. We need, however, to draw a distinction between physiological action and nutritive value. The deficiency of ordinary vegetable dietaries in proteids has long been the subject of criticism by opponents of the vegetarian regimen. In considering this with impartial judgment we may, perhaps, more properly speak of a paucity, rather than a real deficiency, of proteids in the vegetarian dietary, if we accept the evidence afforded by the researches of Prof. Chittenden and Dr. Folin on the actual proteid needs of the body. And, furthermore, it is well to bear in mind the recent progress in the production of palatable plant products which are decidedly rich in proteids. The animal dietary, employed in moderation, is not so profoundly different from any other adequate dietary, and it has, to recommend it, a high degree of digestibility and palatability. In the field of dietetic therapy, particularly, radical changes of diet frequently supply essential factors or eliminate deleterious ones in most welcome and unsuspected ways; but, in general, the exclusive system has no adequate justification.

The Mechanics of Some Digestive Processes.—This paper was by Prof. W. B. Cannon, of Harvard University. The object of his investigations had been to ascertain how different classes of foodstuffs, fats, carbohydrates and proteids are treated mechanically in the stomach and intestines, *i.e.*, at what rate they leave the stomach. The foodstuffs were administered in uniform amount and of uniform consistence, with a uniform small amount of bismuth added, and the passage of the food through the alimentary canal was watched by means of the X-ray. The animals experimented on were observed at regular intervals for some hours after feeding and the observations recorded. The researches obtained were presented in a series of lantern slides, the first of which showed the clearness with which X-ray shadows of food in the body can be seen. It was found that fat remains in the stomach a long time, leaving very slowly, and that carbohydrate stays in the stomach only about one-half as long as proteid. When there was a mixture of equal parts of carbohydrate and proteid the food did not leave the stomach as slowly as proteid nor so rapidly as carbohydrate; the discharge being intermediate in rapidity. With a mixture of proteid and fat, the presence of the fat caused the proteid to leave the stomach even more slowly than protei alone. So, with a mixture of carbohydrate and fat, the fat caused the carbohydrate to leave the stomach more slowly than carbohydrate alone. It was evident, therefore, that the stomach readily lets go the carbohydrate food, which its juices do not materially affect, while it retains the proteid food, which its juices aid in digesting, until these juces have done their work. Peristaltic waves are passing all the time, but the proteid is prevented from issuing from the stomach by a mechanism at the pylorus. Evidence is accumulating, he said, which goes to show that this mechanism is controlled by free acid in the stomach. Carbohydrates do not unite with acid; free acid is secreted very soon, and they have a quick exit. Proteids unite with acid to make acid proteid; free acid is delayed, and their exit is slow. Fats check the secretion of acid, and therefore have a slow outgo. The control of the situation is at the pylorus. The acid in the duodenum is known to close the pylorus and keep it closed, while that in the stomach has the effect of opening it. Thus, the acid chyme would go forth from the stomach, and with its acid close the gate behind it. But in the duodenum the acid gradually becomes neutralized by the alkaline secretions of the pancreas, until at last the acid in the stomach can again open the pylorus. Then again the pylorus is closed, and the process repeated.

The Influence of Preservatives and Coloring Matters and their Relation to Nutrition.—This was the subject of a paper by Dr. H. W. Wiley, Chief of the Bureau of Chemistry, U. S. Department of Agriculture. He said that the widespread use of these bodies in food products had attracted the attention of physiologists, physiological chemists, hygienists and food officials during the last few years. Two important questions are involved in the use of such agents in food products. One relates simply to the question of fraud or deception, and the other to the influence of these bodies upon health and digestion. The chief points to which he called attention were as follows: (1) There is no necessity for the use of chemical preservatives in food products. (2) There is no necessity for the use of artificial colors in food products. (3) It is not ethical to so prepare foods as to force people in general to eat preservatives and coloring matters, whether they want to or not. (4) Those who desire to eat preservatives and coloring matters in foods can have their foods specially prepared for them. (5) The fact that small quantities of preservatives do no harm is not equivalent to a verdict of "not guilty." (6) It is certain that a great many conscientious and painstaking observers have established with reasonable certainty the fact that preservatives and coloring matters at times work injury to health and digestion.

Immunity from Disease of Troops in Russo-Japanese War.—Col. Valery Havard, Assistant Surgeon-General, U. S. A., who was with the Russian forces in Manchuria, spoke on this topic. The rations of the Russian soldiers, he said, consisted largely of black rye bread, whose laxative qualities no doubt had a marked influence in preserving the health of the troops. Among the Japanese, beriberi was the cause of about three-fourths of the mortality of the army. It was a recognized fact that neither Japanese nor Russians were nearly so susceptible to typhoid fever and similar diseases as Americans and English.

Disastrous Effects of a Defective, Deficient and Inappropriate Dietary in the Field.—Dr. L. L. Seaman, late Surgeon of the 1st Regiment of Engineers, U. S. Volunteers, said that it was to be regretted that Prof. Cannon had not also presented the effects of a diet that no longer acted as a food, but as an irritant or a foreign substance, and so became a factor in the mechanical production of disease. It was this cause which contributed largely to bringing the American army almost to its knees in its short campaign in Cuba and Porto Rico in 1898. When whole regiments were suffering from diarrheas and intestinal catarrhs (and he had seen over 75 per cent. of a command victims of these disorders at one time), they were subsisted on a ration the component parts of which were principally fat pork, canned beef, baked beans, and canned tomatoes, the latter often in a state of fermentation. The natural result was that in many there was soon engrafted a pathological condition with grave lesions.

His own regiment, which landed in Porto Rico in perfect physical condition, lost over five tons in weight in three months. Nor were these dietary disasters confined to our own army. In the terrible war just ended in the Orient both contending armies suffered, but from entirely different causes. At Port Arthur the long-besieged Russians were compelled to subsist on a diet without vegetables, and they rapidly succumbed to the ravages of scurvy. On the other hand, the Japanese, living on a diet almost exclusively of vegetables (especially rice) and deficient in nitrogenous elements, had their ranks decimated by beriberi. In conclusion Dr. Seaman said: "The solution of the subject of a proper dietary for our own army is not a simple one, or if it is, the ruling authorities cannot be made to appreciate it. If the talent gathered here this evening would take an active part in the practical solution of this question, much might be done toward ameliorating the sufferings of a class of men whose trials in time of war are already sufficiently severe."

CHICAGO MEDICAL AND SURGICAL SOCIETIES.

Joint Meeting, held June 7, 1905.

Dr. L. L. McArthur, M.D., President of the Chicago Surgical Society, in the Chair.

Biological Aspect of Carcinoma.—Prof. G. N. Calkins, of Columbia University, New York City, and Biologist of the State Cancer Laboratory of Buffalo, by invitation, spoke on the biological aspect of carcinoma. He said that in these days in scientific matters, it was not remarkable that pathologists, chemists and biologists should join physicians and surgeons in a combined attack upon the carcinoma problem. All joined in the common task of ascertaining, if possible, the cause of this disease, a search which, as yet, is unsuccessful. After discussing at length the nature of the various stimuli which cause abnormal proliferation in differentiated cells, he mentioned studies of his own that were undertaken relative to the nature of division energy of the cell, to find out what it was that would control it, what would increase or decrease its activity, what stimuli were necessary, and what conditions of metabolism and morbidity had their effects upon it. He mentioned the theories in vogue which have to do with the explanation of the stimulus of division energy of the carcinoma cells. Were we to believe, with Cohnheim, for instance, that carcinoma was due to the fact that certain embryonic cells in the early period of growth of the organism became side-tracked, put away in a recess of the organism, so to speak, where they may remain ten, twenty, thirty, fifty, or sixty years before this division energy is stimulated? When the division energy is finally stimulated, the question arises again, What is the nature of the stimulus? The Cohnheim hypothesis demands an explanation of the renewed division energy no less than any other theory that has been brought out. Of the various theories advanced, he considered only two. The first, Marchand's, which was analogous to the stimulus of the gall-producing insect poison on plant cells; and, second, the parasite hypothesis.

Work on Mice.—He thought he could best make this clear by a brief statement of the work on mice, which they are doing in the study of cancer at the State Cancer Laboratory in Buffalo. They have in Buffalo some two hundred mice with carcinoma. The original tumor mice, which Dr. Gaylord brought with him from Professor Jensen's laboratory in Copenhagen in February, 1904, died on the way from New York to Buffalo. The tumors were removed and put on ice. In three days, when mice had been obtained, the tumors were transplanted into normal mice. About forty per cent. practically of the transplantations took, and a large number of mice developed carcinoma. These make their appearance in from three to five or six weeks after inoculation, the tumor mice ultimately developing symptoms of cachexia, followed by death. The tumors that developed varied in size from one-third the weight of the mouse plus the tumor to one-fifth. These tumors were transplanted from mouse to mouse nine successive times in the Buffalo Laboratory. Professor Jensen had similarly transplanted the tumors from mouse to mouse for a period of two and a half years before Gaylord brought them from his laboratory to Buffalo, so that, altogether, there have been, in all probability, about thirty to thirty-five generations or transplantations of this tumor. These tumors are merely metastases from the original growth. The cells of the old tumor in each successive new environment were stimulated to grow and develop into a new tumor. According to the Marchand hypothesis, the primary stimulus which the first mouse received was a poison which originated from deranged metabolism, from malnutrition, or from some other product of morbidity in the organization of the mouse. Are we to assume that there is formed in every mouse morbid products which carry on the stimulus to the dividing energy of the cells? In other words, can the organism produce a toxin which acts as a continued cumulative disease factor? On the other hand, according to the parasite hypothesis, we might assume that the primary tumor of the original mouse was caused by poison from some parasite. To explain the stimulation of the division energy, some poison of one origin or another seems absolutely necessary. According to the parasite hypothesis, the toxin is produced by some parasite. Some advocates may argue that it is an initial parasite invasion; others a continued parasite infection which carries on the primary stimulus through generations of tumors, and causing the production of a large mass of cells which represents ten or twenty times the actual weight or size of the mouse. If the latter view is correct, we must say that every epithelial cell has within itself parasites which keep on producing a stimulus to the division energy. There is absolutely no morphological element in cancer cells which can be interpreted as parasites, and no morphological evidence of such parasitism. The advocates of the parasite hypothesis are forced to the conclusion that the parasite must be ultra-microscopic. The speaker did not wish to advocate that view. He said, however, that it was gaining ground throughout the scientific world. Schaudinn, the most eminent parasitologist, believes in the possibility of ultra-microscopic organisms. The Pasteur Institute has practically accepted this explanation for certain diseases. In November of last year the mouse tumor began to deteriorate; and the mice showed signs of natural immunity and ability to throw off disease. A great many mice spontaneously recovered. They have had altogether over 150 cases of spontaneous recovery from true carcinoma in mice. They thought the tumor material was growing

physiologically old, and that it would die out and their means of experimentation would be lost. A tumor, however, was transplanted to a new strain of mice, and the virulence of the cells was restored, so that the mice died in from three to five weeks after inoculation.

Dr. Clowes, chemist of the Laboratory, conceived the idea that the blood from such a spontaneously cured mouse might carry immunity. He inoculated some mice having tumors of small size with the immune blood from a mouse that had spontaneously recovered. This was done in a number of cases, and six tumors disappeared by this immune serum. Experiments have shown that immunity thus acquired has been efficient up to the present time, and has carried with it protection to the mice against reinfection.

The experiments have been tried subsequently in a slightly different form. In one such experiment, for example, 45 mice from the same source were taken; 23 of them were treated with cancer mush plus the immune serum from the mice which had spontaneously recovered; and 22 of them were treated with cancer mush plus the normal blood of normal mice. The only difference between them apparently was the immune factor from cases in which the mice had spontaneously recovered. In the 23 mice treated with this immune serum, 3 developed tumors. In the 22 mice that were treated with normal blood plus the serum, 10 tumors developed, or about the proportion of tumors successfully produced by the inoculation method.

This, in brief, he stated, was the position, from a biological point of view, of the cancer problem to-day. It is not known what causes the stimulus. It is not known that there is a parasite in cancer. It is not known that a specific poison produced in any way is the cause of carcinoma; nor is there sufficient evidence, on biological and cytological grounds, to justify the hypothesis of Farmer, Moore, Walker, and Bashford. Progress, however, is being made.

Dr. E. Wyllys Andrews read a paper in which he discussed the past and future surgery of carcinoma.

The X-ray in the Treatment of Carcinoma.—Dr. William Pusey said, in considering the use of X-rays in carcinoma, it would seem to be conducive to clearness, first, to determine the demonstrable facts concerning the influence of X-rays on carcinoma tissue; and, second, in the light of these, to consider clinical findings. In this way he discussed the subject. He emphasized the point that carcinoma tissue upon the surface could, with practically unvarying regularity, be destroyed with X-rays and be replaced by healthy scar tissue. But when we come to carcinomas more deeply situated, we were not in possession of many authentic facts; he had two cases from which, however, he could furnish definite post-mortem data. These two cases were primary carcinomas of the breast. One of these, an old woman, referred to him by Dr. E. Wyllys Andrews, had a large primary carcinoma of the breast without involvement of the skin, with enlarged axillary glands, and with spinal metastasis when the treatment was begun. The patient had vigorous X-ray exposures lasting about a month, with the production of a dermatitis which subsided completely before her death, about three months after the treatment began. At the post-mortem examination it was found that the breast was a mass of connective tissue, without any carcinoma tissue remaining. The same was true of the axillary contents; they were converted into a mass of connective tissue without the remains of carcinoma. In the second case, an old woman referred to him by Dr. J. B. Murphy, there was a large primary carcinoma of the breast without involvement of the skin, and with enlargement of the axillary glands. She had vigorous treatment for six weeks, with the production of only a mild reaction. About three weeks after he saw her she developed an acute gastritis, from which she died. On post mortem, it was found by Dr. W. A. Evans that the tumor of the breast had been converted into a small fibrous mass, about the diameter of and two-thirds the length of an index finger. The carcinoma had been destroyed, and there remained in its place a small mass of scar tissue. In this case the axillary glands had not been affected. He believed that any epithelioma which had not metastases, and which had not deeply involved the subcutaneous tissue, might be symptomatically cured by X-rays. By symptomatically cured he meant to say converted into healthy scar tissue, as healthy scar tissue could be gotten after the excision of epithelioma. The superficial extent of the carcinomas was a factor of some consideration in the prognosis, but the most extensive epitheliomas that he had seen he had symptomatically cured with X-rays. He had seen lesions, involving areas of from thirty to forty or fifty square inches, converted into healthy scar tissue. As to the permanence of the results in epithelioma, some of his cases had gone now more than three years without recurrence, and he believed that whenever one was able to get a satisfactory scar, he might count upon a permanent result. In advocating the use of X-rays in the treatment of epitheliomas, and in the treatment of inoperable carcinomas, consideration should be given to the question—first, is the danger of metastases in epitheliomas increased by the use of X-rays? Second, is there danger of stimulating and rendering more rapid the growth in inoperable carcinoma by the use of X-rays? He believed that both questions could be positively answered in the negative. The histological findings, in the first place, were not such as to lend plausibility to the first of these questions. In carcinoma tissue exposed to X-rays, there was not first a stimulation of the growth, but a degeneration and a disintegration of the youngest peripheral cells. The vitality of the cells was lowered, their nuclei were converted into fragments, the protoplasm degenerated and stained poorly; the whole process was one of disintegration rather than of even temporary stimulation of the carcinoma cells. If there was an organism of carcinoma in these cells, it might be liberated in this process, but certainly any organism which might be so liberated would have already had the opportunity of invading other tissue, and the whole course of carcinoma showed that the danger of metastases arose, not from the presence in the circulation of organisms which might lodge, but from the floating away and lodging at other points of living carcinoma cells, and after X-rays liberated carcinoma cells, they were in no condition to proliferate. His experience had given no plausibility to either of these suppositions of danger. As to X-rays stimulating the growth of carcinomas which they could not cure, he had seen no cases which would lend weight to this hypothesis. On the contrary, he had had many cases in which the amelioration of the condi-

tion during X-ray exposures was explained away by calling attention to how frequently these cases did better than was to be expected.

Dr. Arthur Dean Bevan said the first thing that impressed him in the clinical study of carcinoma was that it is primarily a local disease. There certainly was a time in the history of every carcinoma when it was local, limited to one point, sometimes to a few points—concentric foci. One saw clinically occasionally epithelioma, for instance, which, when examined carefully, showed three or four points of invasion very close together. Clinically we saw carcinoma involving occasionally both breasts. These exceptions did not, however, disprove the statement that carcinoma was primarily a local disease. A second point that impressed him clinically was, that whether carcinoma was a parasitic disease or not, its history was that of a parasitic disease. Whether the researches of the future showed that it was a peculiar chemical stimulus that acted upon the cells and produced these changes, or whether it was a parasite, whether it was purely chemical and independent of any low form of life, or the result of some low form of life, made no difference, the clinical history of carcinoma would remain that of a parasitic disease. In regard to the present results of surgical treatment of carcinoma, these varied in different regions of the body, and the reports from different clinics varied widely. For instance, some surgeons who had made several hundred operations for epithelioma of the cervix state that possibly less than five per cent. of these cases were permanently cured. Some men even have gone so far as to state that less than one per cent. of such cases were permanently cured. Some men, even, have gone so far as to state that less than one per cent. of such cases are permanently cured by surgery. On the other hand, cancer of the body of the uterus furnished a far greater proportion of permanent cures. Carcinoma of the larynx furnished a comparatively large proportion of permanent cures; while carcinoma of the breast occupied a rather mid-position between extremely fatal carcinoma of the cervix and more favorable carcinoma of the larynx. An analysis of the different statistics of carcinoma of the breast would seem to show that surgical treatment furnished somewhere between twenty and possibly thirty per cent. of permanent cures. In this connection, he said that in the last few years there had been a great effort made to improve the statistics, so far as permanent cure was concerned, from surgical operations in treating carcinoma, and in doing this there had been a certain amount of juggling. In one well-known surgical clinic (Johns Hopkins Hospital Clinic), the reports of the surgical removal of carcinoma of the breast had been extremely favorable. An analysis of the facts, however, revealed this explanation, which, in part at least, accounted for their very favorable results, i.e., they had there divided their cases of carcinoma of the breast into two groups, and at the time of operation, or rather, after the operation was completed, if, in the judgment of the surgeon, the case was one which gave good prospects of a permanent cure, it was reported. If the case did not, in the opinion of the surgeon, give a good prospect of permanent cure, it was pigeon-holed in a second group which was not considered in the final statistics. In other words, only those cases which were, in the opinion of the surgeon, favorable to permanent cure after the operation was completed, were reported. Statistics which were based upon the total number of cases operated upon would seem to give, in cases of carcinoma of the breast, the possibility of permanent cure in from twenty to thirty per cent. There was one other point that had impressed him very much, and that was the three-year limit in connection with carcinoma. It had been taught for some time that if a patient lived beyond three years without recurrence, there was little danger of such recurrence. A careful analysis of statistics would show that this was not so. Cases of carcinoma recurred three and a half, four, six, and even ten years after operation. There was a gradual diminution in the percentage of recurrences as the time period increased from the date of the operation. He agreed with Dr. Pusey as to the value of the X-ray in epithelioma. He thought it should not be used in cases of thick epithelioma, whether the lymphatics were involved or not. Superficial epithelioma was the form in which the X-ray was particularly of value. In thick epitheliomas, say, of the thickness of the thumb, on the lower lip, it should not be employed. There were two great dangers from the use of the X-ray. One was that it would produce serious burns in the hands of men who were not experienced in its use; the other was that it would do positive damage when it was used in a case where a surgical operation, if employed sufficiently early, would hold out a good hope of permanent cure, but where delay produced by the use of the X-ray wasted valuable opportunity and lessened the chances of permanent cure.

BOOK REVIEWS.

THE PRINCIPLES OF HEREDITY. With some Applications. By G. ARCHDALL REID., M.B., F.R.S.E. E. P. Dutton & Co., New York.

DR. REID, it may be remembered, has dipped into these fields before. He has made an excellent study of Alcoholism in its relations to Heredity, and now enters into an almost untilled, if not in some regions, untrodden country—the study of heredity as influenced by disease.

It is true we have had much discussion on the hereditary problems connoted with many nervous diseases, notably epilepsy, various insanities, etc., but beyond the general enunciation of vague coincidences, it cannot be said that much progress has been made.

It is with some hope, then, of definite profit that we turn to the present volume, for the author has made it apparent that there is much valuable evidence bearing on the problems of heredity to be drawn from the study of disease.

That much needless discussion about the transmission of acquired characters might have been avoided, if the facts of human pathology had been reviewed, is one of the theories of the author. He believes that parental acquirements are never transmitted—a belief difficult to reconcile with some of the pathologist's conceptions of immunity. With the more strictly biological problem of the relation of environment to the germ cells and consequent racial change we cannot hope to cope in this short review.

The author believes in the von Baer recapitulation theory and seeks to place it on a firm foundation.

The author's introductory chapters review in brief the main hypotheses concerning the problems of heredity. They are clear and very helpful to the student.

such as the medical man, who perforce can only occasionally stray outside of the field of his practical labors. He is, moreover, particularly interesting in discussing the relation of disease to the problems of evolution, the origin of the zymotic diseases, the bacteria as social forces, the mental problems as determined by the use of narcotics, etc.

In the closing chapters, where educative factors are discussed, the author has a number of interesting and suggestive topics.

By way of criticism, the general style is anything but happy. And again, the author has been extremely unsystematic in his collection of material. Some of the facts being coordinate and logically arranged, others thrust pell mell, confused and at time almost negativing the deductions drawn from them.

The book is not to be followed as an authority by any means. It is instructive, useful, entertaining in places, but must be read discriminatingly.

DISEASES OF THE BLOOD. By Prof. D. P. EHRLICH, of Frankfort, Prof. K. VON NOORDEN, of Frankfort, Dr. A. LAZARUS, of Berlin, and Dr. F. PINKUS, of Berlin. Edited by ALFRED STENGEL, M.D., Professor of Clinical medicine in the University of Pennsylvania. W. B. Saunders & Co., Philadelphia and London.

IT it a far cry from the consideration of the liquor sanguinis of the early clinicians to this modern treatise of 700 pages on the diseases of the blood. It is not many years since the two words here written conveyed almost all of the information about the blood that was known. We venture to say that many works of this size, or larger, will be necessary in the near future to tell all that is known, and of practical value only, about the blood.

Blood investigations offer to most men of studious habits a fascination that cannot but render this volume particularly welcome. When it is recalled that a good microscope, a few accessories, and "sitz fleisch" are the only requisites for a mastery of this branch of work, it is not to be wondered at that so many medical men take an active interest in the study.

Few of the readers of the MEDICAL NEWS need to be told that this volume is without doubt the most authoritative and extensive of any modern treatise. As for its scope, it includes a valuable summary of the normal histology of the blood, with full consideration of the technical methods of investigation. Anemia, in its various types, chlorosis, leucemia, lymphatic and myeloid constitute the main subjects of discussion. It is unnecessary to further designate the details of the subject-matter of the book. We feel that the profession is fortunate in this, as in the other representatives of the "Nothnagel Series," that one of the leading German monographs is so well rendered in English for its use.

A TREATISE ON PLAGUE. Dealing with the Historical, Epidemiological, Clinical, Therapeutic and Preventive Aspects of the Disease. By W. J. SIMPSON, M.D., F.R.C.P., D.P.H., Professor of Hygiene, King's College, London, etc. The Macmillan Company, New York.

A BOOK of this type is very stimulating. We are only too prone to believe that epidemics are things of the Middle Ages. Many of us are tinctured, if not saturated, in the belief of our own superiority in matters hygienic, and it comes as a rude shock to realize that epidemics, such as the plague, come and go—willy nilly—modern science or so-called "ancient superstitions," notwithstanding.

With reference to the plague this book gives us much to think of. Plague, the author tells us, takes its own time and opportunities for its development, and it is unwise to be lulled into a sense of security by its apparent inpotency to spread in a particular country. Confined to remote corners of China, India, Persia, Arabia, Africa, its power was thought to be extinct. In Bombay, where it broke out (after a lapse of over two hundred years), no one dreamed that the modern English hygienists could not speedily eradicate it—but since 1896 to the present day thousands and hundreds of thousands of lives have been lost. So many in fact have been the deaths that medieval legends of devastation almost pale into insignificance. One quarter of a million inhabitants of the Punjab died in 1904 of this disease.

All of this makes for much concern on the part of the sanitary officers of this country. For can it not be said that with increasing population we in some regards are approaching unsanitary conditions not much removed from those found in plague-stricken districts? To the new possessions and their new diseases, the study of these tropical disorders becomes more and more imperative.

Here is a judicial book, a well-written one, authoritative, interesting and withal of paramount importance to every hygienist in the country.

PRACTICAL PEDIATRICS, a Manual of the Medical and Surgical Diseases of Infancy and Childhood. By Dr. E. GRAETZER, Editor of the *Centralblatt für Kinderheilkunde* and the "Excerpta Medica." Authorized translation, with numerous additions and notes, by HERMAN B. SHEFFIELD, M.D., Instructor in Diseases of Children and Attending Pediatrist (O.P.D.), New York Post-Graduate Medical School and Hospital; Visiting Pediatrist to the Metropolitan Hospital and Dispensary. F. A. Davis Company, Philadelphia.

THE German author calls this "a reference book which will enable the practitioner *cito, tuto et jucunde*, to familiarize himself with all subjects pertaining to diseases of childhood"—a very large claim for a small book. Indeed, we must forget such claim, and look upon the book as a concise manual of pediatrics, intended to cover the whole field, but not to dig deeper than the undergraduate's level of knowledge. Not the least commendable of the many good things in the book are the notes by the American editor, for they represent very well the latest American practice. In this edition the alphabetical arrangement of the German edition has fortunately been discarded in favor of a grouping under appropriate headings, such as, Infant Feeding, Disorders of Nutrition, Diseases of the Newly Born, Diseases of the Blood and Spleen, etc. These subjects constitute the main portion of the book, the various diseases being taken up in a systematic and very helpful way. An agreeably surprising feature in such a small book is the frequent reference to authorities, and the care with which the author places before his reader the various opinions in vogue. The rest of the book is given up to "Materia Medica and Therapeutics," under the headings Hydropathy, Electricity, Massage, Climatology, Dietary and Materia Medica proper, this last being a comparatively useless alphabetical list of drugs and their uses. Dr. Sheffield has written the chapter on Palatable Prescribing, which contains suggestions as to the giving of medicine to young children. The original matter is considerable, and the work of others well presented, so that, as a "manual," we consider the book one of the best that we have seen. It is made additionally attractive by fine paper and type and flexible binding.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Sixteenth Session, held at Detroit, Mich., May 30, 31, and June 1, 1904. Edited by LINNAEUS EDFORD LA FÈTRA, M.D. Vol. XVI. Reprinted from Archives of Pediatrics, 1904-1905.

THE material included in these transactions is of a high order of merit, and a summary of the more important articles will best indicate the quality of the book: "Considerations Regarding Substitute Feeding during the First Year," by Rotch, "Disturbances of Digestion from Too High Fat Percentages," by Holt, "The Influence of Laboratory Feeding on Two Hundred and Sixteen Infants with Disease of the Gastro-enteric Tract," by Maynard Ladd, "Nervous Exhaustion in Infants," by W. P. Northrup, "The Rachitic Hand," by Koplik, "Acute Myocardial Insufficiency in Children's Infections," by F. Forchheimer, "Acute Leucemia in Early Life," by F. S. Churchill, "Bronchial Asthma in Infants and Children," by L. E. La Fétra, and other articles of equal interest and value. In size and binding the book conforms with its predecessors.

A TEXT-BOOK ON THE PRACTICE OF MEDICINE, FOR STUDENTS AND PRACTITIONERS. By JAMES MAGOFFIN FRENCH, A.M., M.D., formerly Lecturer on the Theory and Practice of Medicine, Medical College of Ohio. Second Revised Edition. William Wood & Company, New York.

WE reviewed the first edition of Dr. French's book some two years ago, and there is not much additional to be said with regard to the second edition. Certain changes have been made in the chapter on the intestinal parasites and with regard to some of the recent developments of parasitology generally as it is of clinical interest. The volume is not quite large enough to compare with the ordinary text-books on medicine and not quite condensed enough to be considered a manual. It would scarcely do for a reference book, and yet is rather large for a work to consult in the few minutes that a busy practitioner allows himself to get further information as to a disease. As it goes, however, the material is well selected and carefully put together.

A TEXT-BOOK OF MEDICAL PRACTICE FOR PRACTITIONERS AND STUDENTS. Edited by WILLIAM BAIN, M.D., Duhr., M.R.C.P. Lond. With illustrations. Longmans, Green & Co., London, New York and Bombay.

THE book-making in this volume is excellently done. It is printed on thin paper, which enables the publisher to get it within the limits of reasonable size for a hand-book and yet furnish a thousand pages of reading matter. The type is not as large as that often selected for text-books and as a consequence there are in most places eight hundred words and, in some places where the matter is less important, one thousand words to the page, yet all is readily legible without eye tire. Altogether there are over eight hundred thousand words in a volume that is not cumbersome. The text-book has for contributors some of the best known among the younger investigating medical men of London. For those who wish to know the present status of progressive clinical medicine in England we are acquainted with no text-book that will be so eminently helpful for the purpose. It contains an immense amount of information, not often given in text-books of medicine, and yet that the progressive practitioner should have close at hand. For those who feel that they want a mirror of English practice handy and easy to consult we can heartily recommend the book.

A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY FOR STUDENTS OF MEDICINE. By JOHN H. LONG, M.D., Sc.D., Professor of Chemistry in Northwestern University Medical School, Chicago. P. Blakiston's Son & Co., Philadelphia.

THE tendency in medicine is definitely chemical. Physiological and pathological processes are being interpreted and furthermore understood when considered in the light of the physicochemical reactions. Of the numerous physiological chemistries, and most of them are good, this new claimant for honors possesses qualities that entitle it to commendation. It possesses the merit of simplicity and conciseness. It deals with the elementary, rather than with the advanced problems of its special field, and hence is to be considered an excellent work for the beginning student. Being, furthermore, written in a very simple style, there can be no excuse on the part of the student that it cannot be comprehended.

We believe that it will serve a very useful purpose, but students must not stop their physiological chemistry reading with this treatise. It will serve as a framework, on which the details may be hung later.

A TEXT-BOOK OF MEDICAL CHEMISTRY AND TOXICOLOGY. By JAMES W. HOLLAND, M.D., Professor of Medical Chemistry and Toxicology, and Dean, Jefferson Medical College, Philadelphia. W. B. Saunders & Company, Philadelphia and London.

THIS is an excellent text-book for medical students. Coming as a new book, it has all the advantages of freshness of statement and brightness of method. In this sense it may be said to be the most modern of the text-books offered.

Furthermore, Holland's work presents, or is rather written from the standpoint of the newer chemistry; not in the foreground, it is true, but in the safe middle distance, and as such the old facts which have been so familiar as to be so easily forgotten, have taken on new sidelights and once more become of interest. It is a book to be commended to student and graduate alike. It deals with both inorganic and organic chemistry; has an abundance of toxicology—just why is not apparent—and excellent chapters on physiological chemistry, especially the one on the examination of the urine.

BOOKS RECEIVED.

PHYSICAL DIAGNOSIS. By Dr. R. C. Cabot. 8vo, 577 pages. Illustrated. Wm. Wood & Co., New York.

SUPERSTITION IN MEDICINE. By Dr. H. Magnus. 12mo, 205 pages. Funk & Wagnalls, New York and London.

THE SURGICAL ASSISTANT. By Dr. W. M. Brickner. 8vo, 361 pages. Illustrated. International Journal of Surgery Co., New York.

ADDRESSES AND OTHER PAPERS. By Dr. W. W. Keen. 8vo, 442 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

ATLAS AND TEXT BOOK OF TOPOGRAPHIC AND APPLIED ANATOMY. By Dr. O. Schultze. Edited by Dr. G. E. Stewart. 8vo, 189 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

TREATISE ON ORTHOPEDIC SURGERY. By Drs. E. H. Bradford and R. W. Lovett. Third edition. 8vo, 670 pages. Illustrated. Wm. Wood & Co., New York.

A MANUAL OF CLINICAL CHEMISTRY, MICROSCOPY AND BACTERIOLOGY. By Drs. M. Klopstock and A. Kowarsky. 12mo, 296 pages. Illustrated. The Rebman Co., New York.